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Supplement to the 200-PO-1 Groundwater Operable Unit Data Quality Assessment (2008 through 2013)

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

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Executive Summary

The scope of this report is to summarize the data quality assessment (DQA) activities performed to evaluate the results of 8,645 groundwater samples collected from wells in the 200-PO-1 Groundwater Operable Unit (OU) from January 2008 to December 2013.

The objective of this DQA is to determine whether the data can support the baseline risk assessment (BRA) and selection of remedial alternatives for the 200-PO-1 Groundwater OU. The requirements for the sampling program are found in *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit*,[1] hereafter referred to as the Remedial Investigation (RI)/Feasibility Study (FS) Work Plan. Over the assessment period, samples were also collected in accordance with the following documentation:

- *Sampling and Analysis Plan for the 200-PO-1 Groundwater Operable Unit*[2]
- *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A, "Sampling and Analysis Plan for Remedial Investigation and Characterization of the 200-PO-1 Groundwater Operable Unit")[3]
- *Sampling and Analysis Plan for Groundwater Surveillance Monitoring on the Hanford Site*[4]
- *RCRA Assessment Plan for Single-Shell Tank Waste Management Area A-AX at the Hanford Site*[5]
- *Integrated Disposal Facility Operational Monitoring Plan to Meet DOE Order 435.1*[6]

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[1] DOE/RL-2007-31, 2008, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[2] DOE/RL-2003-04, 2005, *Sampling and Analysis Plan for the 200-PO-1 Groundwater Operable Unit*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[3] DOE/RL-2007-31, 2008, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[4] DOE/RL-2012-59, 2013, *Sampling and Analysis Plan for Groundwater Surveillance Monitoring on the Hanford Site*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[5] PNNL-15315, 2006, *RCRA Assessment Plan for Single-Shell Tank Waste Management Area A-AX at the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

The DQA process follows general DQA guidelines established by the U.S. Environmental Protection Agency (EPA) in EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide* (EPA QA/G-9R), and EPA/240/B-06/003, *Data Quality Assessment: Statistical Methods for Practitioners* (EPA QA/G-9S).[7]

The assessment is based on three levels of evaluation: verification, validation, and data usability assessment. Data verification is the process of evaluating the completeness, correctness, and conformance/compliance of a specific data set against the method, procedural, or contractual requirements. Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e., data verification) to determine the analytical quality of a specific data set. Finally, the data usability assessment is a determination of the adequacy of the data to support a particular environmental decision and is based upon the verification and validation results. When data are collected specifically to perform a statistical test, the DQA must be consistent with the five-step process described in EPA/240/B-06/002 and EPA/240/B-06/003. However, groundwater data for the 200-BP-5 Groundwater OU are collected using a judgmental sampling design. As a result of using a judgmental sample design, steps 3 and 4 of the EPA five-step process do not apply.

The 200-PO-1 Groundwater OU data set included 102,727 analytical results from samples of 168 wells for 346 individual analytes over a period from January 2008 to December 2013. More than 30,196 individual quality control (QC) results were generated in support of the chemical analyses.

The conclusion of the assessment is that the 200-PO-1 Groundwater OU data are the correct type, quality, and quantity to support the BRA and selection of remedial alternatives. This supported by the results of the verification, validation, and data usability assessment. With the exception of the findings described in the following paragraphs, all groundwater samples were collected in accordance with the requirements listed in the associated sampling and analysis plans (SAPs), monitoring plans, and work plans each sample was collected under. Detection limits, precision, accuracy, and data

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[6] RPP-PLAN-26534, 2005, *Integrated Disposal Facility Operational Monitoring Plan to Meet DOE Order 435.1*, Rev. 0, CH2M HILL Hanford Group, Inc., Richland, Washington.

[7] EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide*; EPA/240/B-06/003, *Data Quality Assessment: Statistical Methods for Practitioners*, U.S. Environmental Protection Agency, Washington, D.C.

completeness were analyzed for all groundwater samples to determine if any analytical data should be rejected as a result of quality assurance or QC deficiencies. Other than those results that were noted as unusable, the analytical data were found to be acceptable for the intended use.

Comparison of the 200-PO-1 Groundwater OU data set with the overall Hanford Site groundwater data set, as described in the annual Hanford Site groundwater monitoring reports, showed that the 200-PO-1 Groundwater OU data are at least as good (in terms of accuracy, precision, and blank contamination) as the overall Hanford Site groundwater data set. Both field and laboratory performance parameters are equal to or better than those for the Hanford Site groundwater data as a whole. The overall project completeness is estimated to be greater than 99 percent. Completeness is a measure of valid data obtained from the laboratory compared to the amount of data expected to be obtained, based on the analyses requested in the SAP(s), under correct normal conditions.

While the overall laboratory QC performance was very good, specific deficiencies were identified and are listed below:

- A total of 69 individual analytes reported laboratory contamination that exceeded QC criteria. Seventeen analytes (ammonium ion; 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin; 1,2,3,7,8,9-hexachlorodibenzofuran; 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin; 1,2,3,7,8-pentachlorodibenzofuran: 1,2,3,7,8-pentachlorodibenzo-p-dioxin; 2,3,4,6,7,8-hexachlorodibenzofuran; 2,3,4,7,8-pentachlorodibenzofuran; heptachlorodibenzofurans; heptachlorodibenzo-p-dioxins; hexachlorodibenzofurans: hexachlorodibenzo-p-dioxin; octachlorodibenzofuran; octachlorodibenzo-p-dioxin; pentachlorodibenzofurans; and pentachlorodibenzo-p-dioxins) reported 100 percent of their results outside of acceptable limits. A total of 819 individual sample results required qualification as a result of laboratory contamination.

- In total, 105 analytes were reported outside the QC acceptance criteria for laboratory control samples (LCSs), which represented approximately 0.31 percent of the total number of LCSs. A total of 122 individual sample results required qualification as a result of LCS recoveries reported outside QC acceptance criteria.

- In total, 139 analytes were reported outside the QC acceptance criteria for matrix spike (MS)/matrix spike duplicate (MSD) samples, which represented approximately 0.98 percent of the total number of LCSs. A total of 322 individual sample results

required qualification as a result of MS/MSD recoveries reported outside QC acceptance criteria.

- In total, 15 analytes were reported outside the QC acceptance criteria for surrogate spike recoveries, which represented approximately 1.0 percent of the total number of LCSs. A total of 219 individual sample results required qualification as a result of surrogate spike recoveries reported outside QC acceptance criteria.

All method detection limits (MDLs) were evaluated against comparison values (pertinent standards and criteria for the protection of human health and aquatic receptors). A different set of comparison values were selected for the evaluation of samples results from monitoring wells located inland of the Columbia River versus monitoring wells that are located near the Columbia River. The purpose of this evaluation is to determine if the MDL is adequate for confirming absence at levels less than or equal to the pertinent criteria or standards.

The following findings were based on the evaluation of sample results obtained from monitoring wells located inland from the Columbia River:

- MDLs for 195 analytes are less than or equal to their respective comparison value; MDLs for these analytes are considered usable for all RI/FS decision making purposes.

- MDLs for 51 analytes are greater than their respective comparison values; these analytes are not known to be associated with a release at the Hanford Site 200 East Area. In total, 50 of these analytes were not detected in any groundwater sample; the single remaining analyte reported one anomalous detection that was not associated with a trend.

- MDLs for 30 analytes report a portion of their MDLs greater than their respective comparison value. With the exception of antimony, arsenic, beryllium, and cobalt, the analytical data are considered usable for all RI/FS decision making purposes. Most sample results for these five metals reported by EPA Method 6010 (Inductively Coupled Plasma-Atomic Emission Spectrometry) are not usable for RI/FS decision making purposes because a high percentage of sample results are reported as nondetected concentrations, and the MDL is not adequate for confirming their absence at concentrations less than or equal to their comparison value.

The following findings were based on the evaluation of sample results obtained from monitoring wells that have potential to discharge to the Columbia River:

- MDLs for 161 analytes are less than or equal to their respective comparison value; MDLs for these analytes are considered usable for all RI/FS decision making purposes.
- MDLs for 52 analytes are greater than their respective comparison values; these analytes are not known to be associated with a release at the Hanford Site's 200 East Area. All of these analytes were not detected in any groundwater samples.
- MDLs for 28 analytes report a portion of their MDLs greater than their respective comparison value. With the exception of antimony, cadmium, cobalt, and silver, the analytical data are considered usable for all RI/FS decision-making purposes. Most sample results for these five metals reported by EPA Method 6010 (Inductively Coupled Plasma-Atomic Emission Spectrometry) are not usable for RI/FS decision making purposes. This is because a high percentage of sample results are reported as nondetected concentrations and the MDL is not adequate for confirming their absence at concentrations less than or equal to their comparison value.

The overall field QC performance was also very good; however, the following specific deficiencies were identified:

- In total, 28 analytes were reported outside the QC acceptance criteria for field duplicate pairs, which represented approximately 1.1 percent of the total number of field duplicate samples. No sample results are qualified as a result of field duplicate relative percent different (RPD) results reported outside QC acceptance criteria. Analytes and properties that report the highest RPDs (greater than 50 percent) include ammonium, coliform bacteria, aluminum, chromium, cobalt, copper, lead, uranium-235, chloromethane, and methylene chloride.
- One analyte was reported outside the QC acceptance criteria for field split pairs, which represented approximately 0.23 percent of the total number of field split samples. No sample results are qualified as a result of field split RPD results reported outside QC acceptance criteria. Tritium was the only analytes reported with an RPD outside QC acceptance criteria.

- In total, 45 analytes were reported outside the QC acceptance criteria for field blanks, which represented approximately 2.2 percent of the total number of field blank samples. Analytes and properties with high (greater than 10 percent) overall percentages of positive blanks include fluoride, nitrate, sulfate, alkalinity, total organic carbon, total organic halides, calcium, cobalt, magnesium, sodium, uranium, vanadium, gross beta, iodine-129, strontium-90, technetium-99, tritium, iodomethane, and methylene chloride.

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Terms

AEA	alpha energy analysis
AES	atomic emission spectrometry
ARAR	applicable or relevant and appropriate requirement
BRA	baseline risk assessment
CAS	Chemical Abstracts Service
CCC	criterion continuous concentration
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
COPC	contaminant of potential concern
DOE	U.S. Department of Energy
DQA	data quality assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
FS	feasibility study
FY	fiscal year
GC	gas chromatography
GEA	gamma energy analysis
GPC	gas proportional counting
HASQARD	*Hanford Analytical Services Quality Assurance Requirements Documents* (DOE/RL-96-68)
HEIS	Hanford Environmental Information System
ICP	inductively coupled plasma
IDL	instrument detection limit
KPA	kinetic phosphorescence analysis
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MCL	maximum contaminant level
MCLG	maximum contaminant level guideline
MDA	minimum detectable activity

MDL	method detection limit
MS	matrix spike or mass spectrometry
MSD	matrix spike duplicate
N/A	not applicable
OU	operable unit
PCB	polychlorinated biphenyl
PUREX	Plutonium Uranium Extraction (Plant)
QA	quality assurance
QC	quality control
RCRA	*Resource Conservation and Recovery Act of 1976*
RDR	request for data review
RI	remedial investigation
RL	DOE Richland Operations Office
RPD	relative percent difference
SAP	sampling and analysis plan
SDG	sample delivery group
SDT	Sample and Data Tracking (system)
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbon
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
VOC	volatile organic compound
WMA	waste management area
WSCF	Waste Sampling and Characterization Facility

1

1 Introduction

This data quality assessment (DQA) report assesses the laboratory data for groundwater samples obtained from 168 wells in the 200-PO-1 Groundwater Operable Unit (OU) for the period from January 2008 to December 2013. The purpose of this DQA is to determine whether these data are the right type and of sufficient quality and quantity to support remedial investigation (RI)/feasibility study (FS) decisions. The information contained in this report follows guidelines for DQAs established by the Soil and Groundwater Remediation Project. These guidelines are based on the U.S. Environmental Protection Agency (EPA) guide EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide* (EPA QA/G-9R). Table 1-1 identifies all 168 monitoring wells associated with the data evaluated in this report. Figures 1-1 through 1-3 show the locations of the 168 wells included in this DQA.

Table 1-1. List of Selected Groundwater Wells in the 200-PO-1 Groundwater Operable Unit

DOE/RL-2003-04			
299-E13-11[a]	299-E25-26	699-20-E12S	699-40-33A
299-E13-12[a]	299-E25-28	699-20-E5A	699-41-1A[a]
299-E13-14[a]	299-E25-29P	699-21-6	699-41-23[a]
299-E13-16[a]	299-E25-3	699-22-35	699-41-40
299-E13-17[a]	299-E25-31	699-2-3	699-42-12A
299-E13-18[a]	299-E25-32P	699-23-34A	699-42-39A
299-E13-19[a]	299-E25-32Q	699-23-34B	699-42-39B
299-E13-4[a]	299-E25-34	699-24-33	699-42-42B
299-E13-5[a]	299-E25-35	699-24-34A	699-43-3
299-E13-6[a]	299-E25-36	699-24-34B	699-43-44
299-E13-8[a]	299-E25-37	699-24-34C	699-43-45
299-E13-9[a]	299-E25-39[a]	699-24-35	699-43-45
299-E16-2	299-E25-40	699-24-46[a]	699-44-39B
299-E17-1	299-E25-41	699-25-33A[a]	699-45-42
299-E17-12	299-E25-42	699-25-34A	699-46-21B[a]
299-E17-13	299-E25-43	699-25-34B	699-46-4[a]
299-E17-14[a]	299-E25-44	699-25-34D	699-47-5
299-E17-16	299-E25-47	699-26-15A	699-48-7A
299-E17-18	299-E25-48	699-26-33[a]	699-49-13E
299-E17-19	299-E25-6	699-26-34A	699-50-28B
299-E17-21[a]	299-E25-93[a]	699-26-34B	699-52-19

Table 1-1. List of Selected Groundwater Wells in the 200-PO-1 Groundwater Operable Unit

DOE/RL-2003-04			
299-E17-22	299-E25-94	699-26-35A	699-8-17
299-E17-23	299-E26-12	699-26-35C	699-8-25
299-E17-25	299-E26-13	699-2-6A	699-9-E2
299-E18-1	299-E26-4	699-2-7	699-S12-3
299-E23-1	499-S0-7	699-28-40	699-S19-E13[a]
299-E24-16	499-S0-8	699-29-4	699-S19-E14
299-E24-18	499-S1-8J[a]	699-31-11	699-S3-25
299-E24-20	699-10-54A[a]	699-31-31[a]	699-S3-E12[a]
299-E24-21	699-10-E12[a]	699-32-22A[a]	699-S6-E14A
299-E24-22	699-12-2C	699-32-22B[a]	699-S6-E4A
299-E24-23[a]	699-12-4D	699-32-43[a]	699-S6-E4B
299-E24-3[a]	699-13-0A	699-33-56[a]	699-S6-E4D
299-E24-33	699-13-1A	699-34-41B	699-S6-E4E
299-E24-5	699-13-1E	699-34-42	699-S6-E4K
299-E25-17	699-13-2D	699-35-9	699-S6-E4L
299-E25-18	699-13-3A	699-37-43	699-S8-19
299-E25-19	699-14-38	699-37-47A	
299-E25-2	699-17-5	699-37-E4	
299-E25-20	699-19-43	699-38-15	
299-E25-22	699-20-20	699-39-39	
299-E25-25[a]	699-20-E12O[a]	699-40-1	
Miscellaneous Plans and Tri-Party Agreement Change Notices			
299-E17-26[b]	299-E25-236[c]	699-42-40A[d]	699-43-41F[e]
299-E24-24[b]	699-41-42[d]		

Table 1-1. List of Selected Groundwater Wells in the 200-PO-1 Groundwater Operable Unit

DOE/RL-2003-04

Sources: DOE/RL-2003-04, *Sampling and Analysis Plan for the 200-PO-1 Groundwater Operable Unit.*

Ecology et al., 1989, *Hanford Federal Facility Agreement and Consent Order*.

a. Well is also listed in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit.*

b. RPP-PLAN-26534, *Integrated Disposal Facility Operational Monitoring Plan to Meet DOE Order 435.1.*

c. PNNL-15315, *RCRA Assessment Plan for Single-Shell Tank Waste Management Area A-AX at the Hanford Site.*

d. TPA-CN-205, *Change Notice for Modifying Approved Documents/Workplans In Accordance with the Tri-Party Agreement Action Plan, Section 9.0, Documentation and Records: DOE/RL-2003-4, Revision 1, Sampling and Analysis Plan for the 200-PO-1 Operable Unit.*

e. DOE/RL-2012-59, *Sampling and Analysis Plan for Groundwater Surveillance Monitoring on the Hanford Site.*

1.1 Background

In 1989, the Hanford Site was listed on the National Priorities List (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National Priorities List") pursuant to the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA). To address groundwater issues in the 200 East Area, 200-BP-5 Groundwater OU and 200-PO-1 Groundwater OU areas were established.

Two different boundary sets are currently used for the 200-PO-1 Groundwater OU. One type of boundary is geographically defined; the other boundary type includes a 2,000 pCi/L (7,570 pCi/gal) isopleth for the groundwater tritium plume in the southeast portion of the unconfined aquifer. The tritium groundwater plume associated with the 200-PO-1 Groundwater OU extends eastward and southward from potential contaminant sources in the southern portion of the 200 East Area. The geographic boundaries of the 200-PO-1 Groundwater OU are the Columbia River to the east, the 300-FF-5 Groundwater OU to the south, and the 200-PO-1 Groundwater OU to the north. Figure 1-4 shows these boundaries. The 200-PO-1 Groundwater OU underlies six RCRA facilities and the nonpermitted BC Cribs and Trenches area, which have groundwater monitoring requirements under the *Resource Conservation and Recovery Act of 1976* (RCRA) and *Atomic Energy Act of 1954*:

- Plutonium Uranium Extraction (PUREX) Cribs (includes the 216-A-10, 216-A-36B, and 216-37-1 Cribs)
- Waste Management Area (WMA) A/AX Tank Farms (241-A Tank Farm and 241-AX Tank Farm) and the 216-A-29 Ditch
- BC Cribs and Trenches
- 216-B-3 Pond Facility (three lobes)

The largest groundwater plumes within the 200-PO-1 Groundwater OU are tritium, nitrate, and iodine-129, and these plumes originate in the PUREX Plant area. More limited plumes of contamination include strontium-90 near the 216-A-36B Crib (a PUREX Crib) and technitium-99 in WMA A/AX. Other contaminants of potential concern (COPCs) include smaller plumes of arsenic, chromium, cobalt-60, cyanide, manganese, uranium, and vanadium.

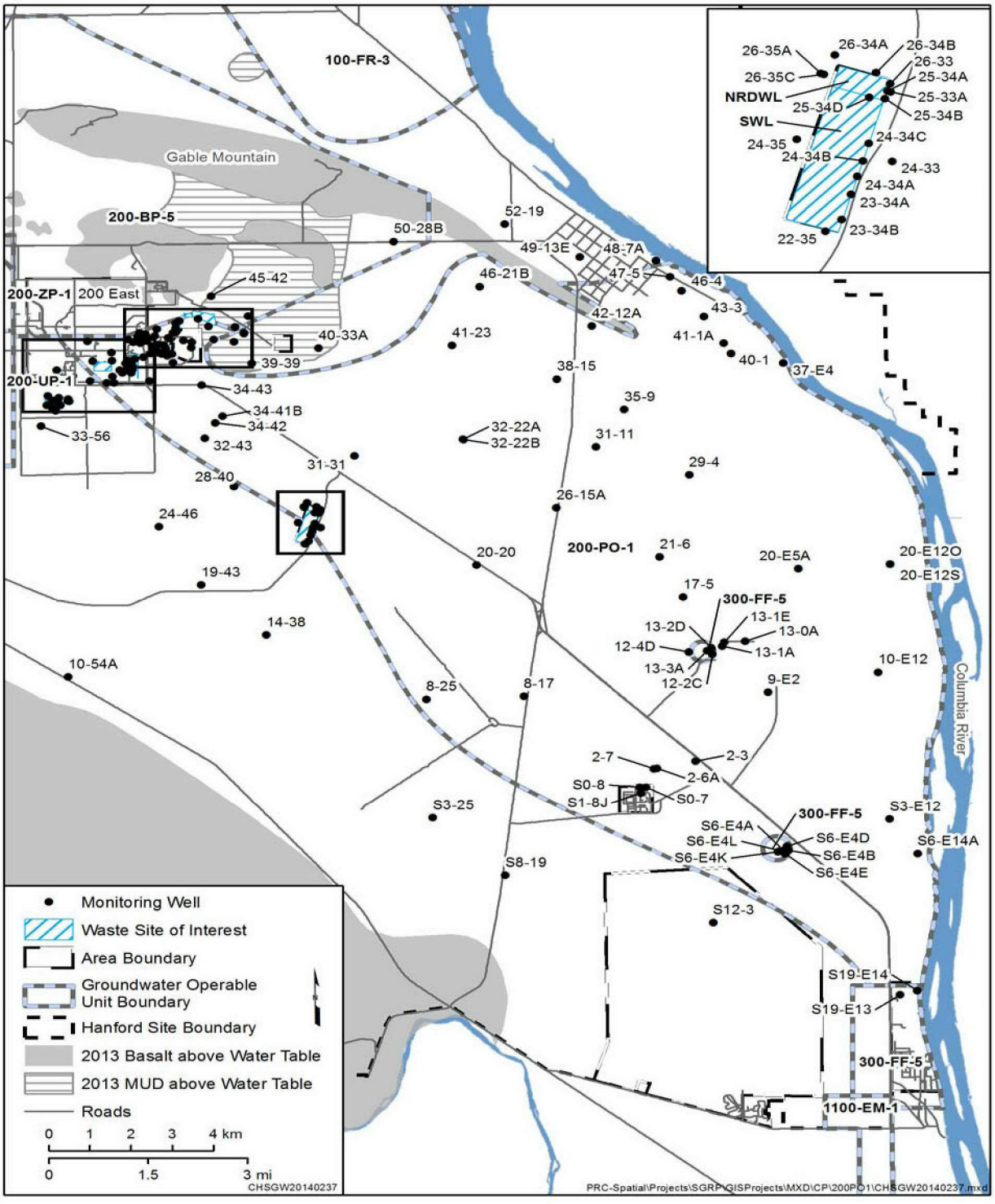

Figure 1-1. Overview of 200-PO-1 Groundwater OU and Monitoring Wells Located in the Far Field

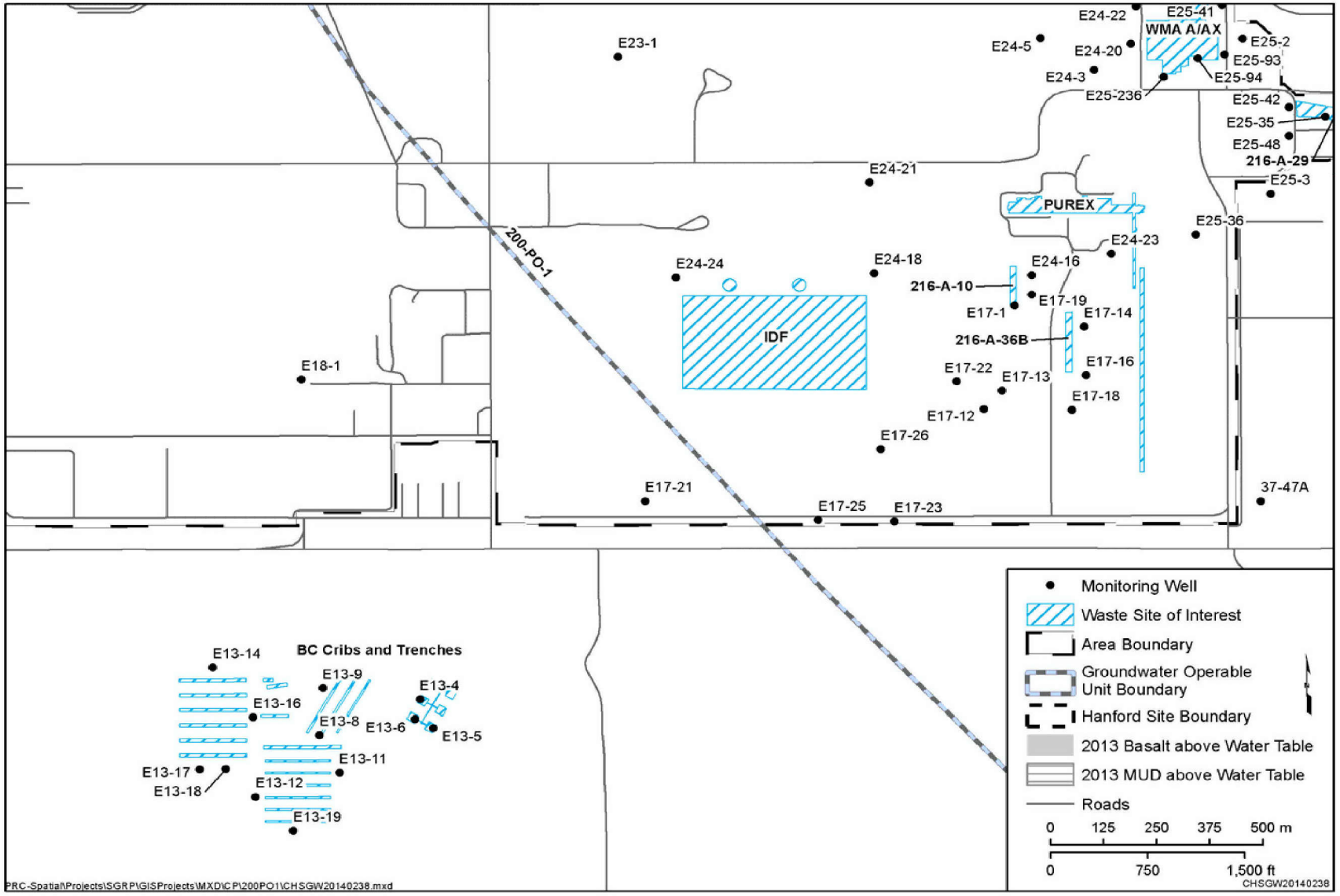

Figure 1-2. Monitoring Wells Located in the WMA A/AX Tank Farms, PUREX Cribs, and BC Cribs and Trenches

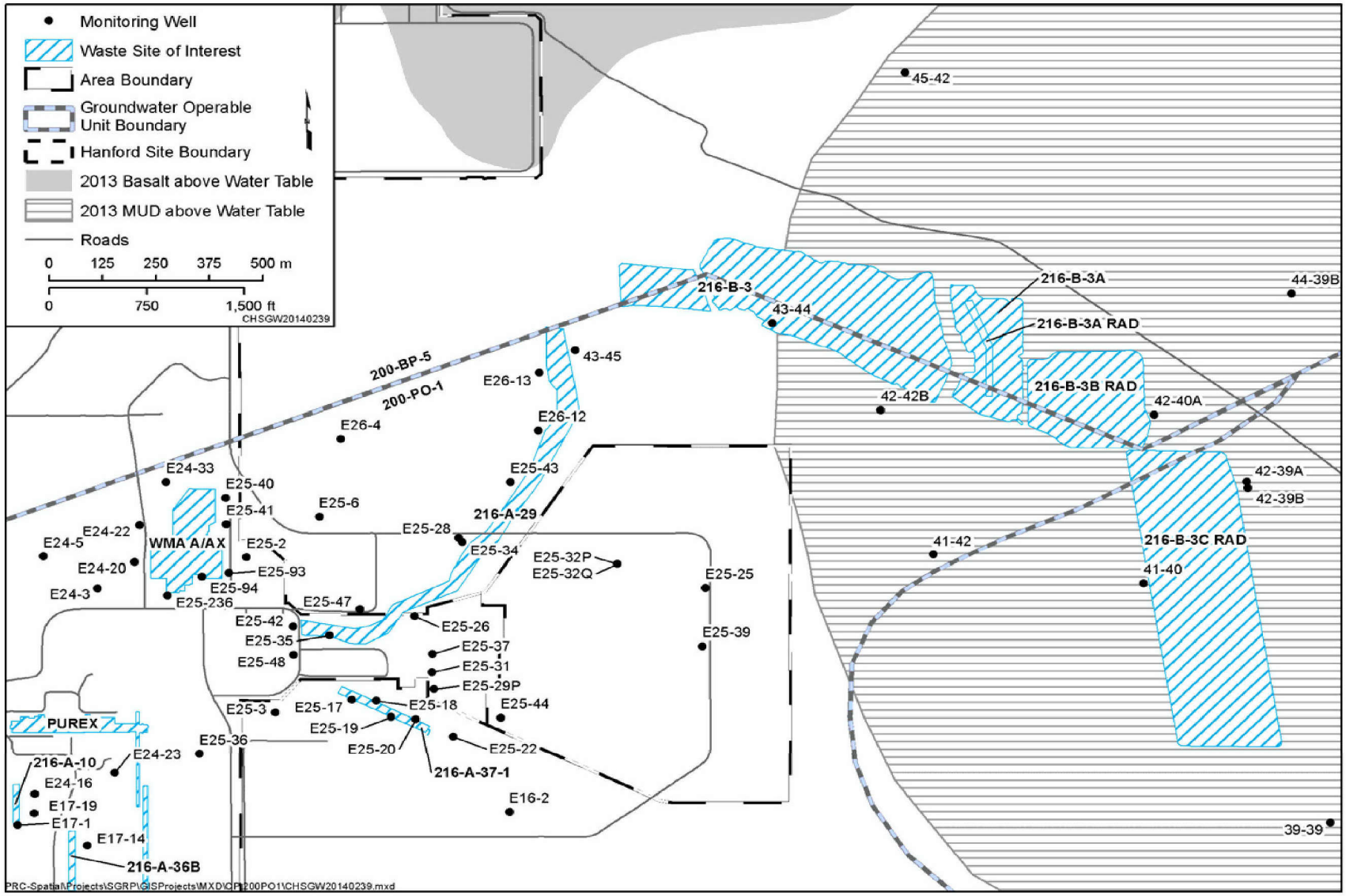

Figure 1-3. Monitoring Wells Located in the 216-A-29 Ditch and the 216-B-3 Pond Facility

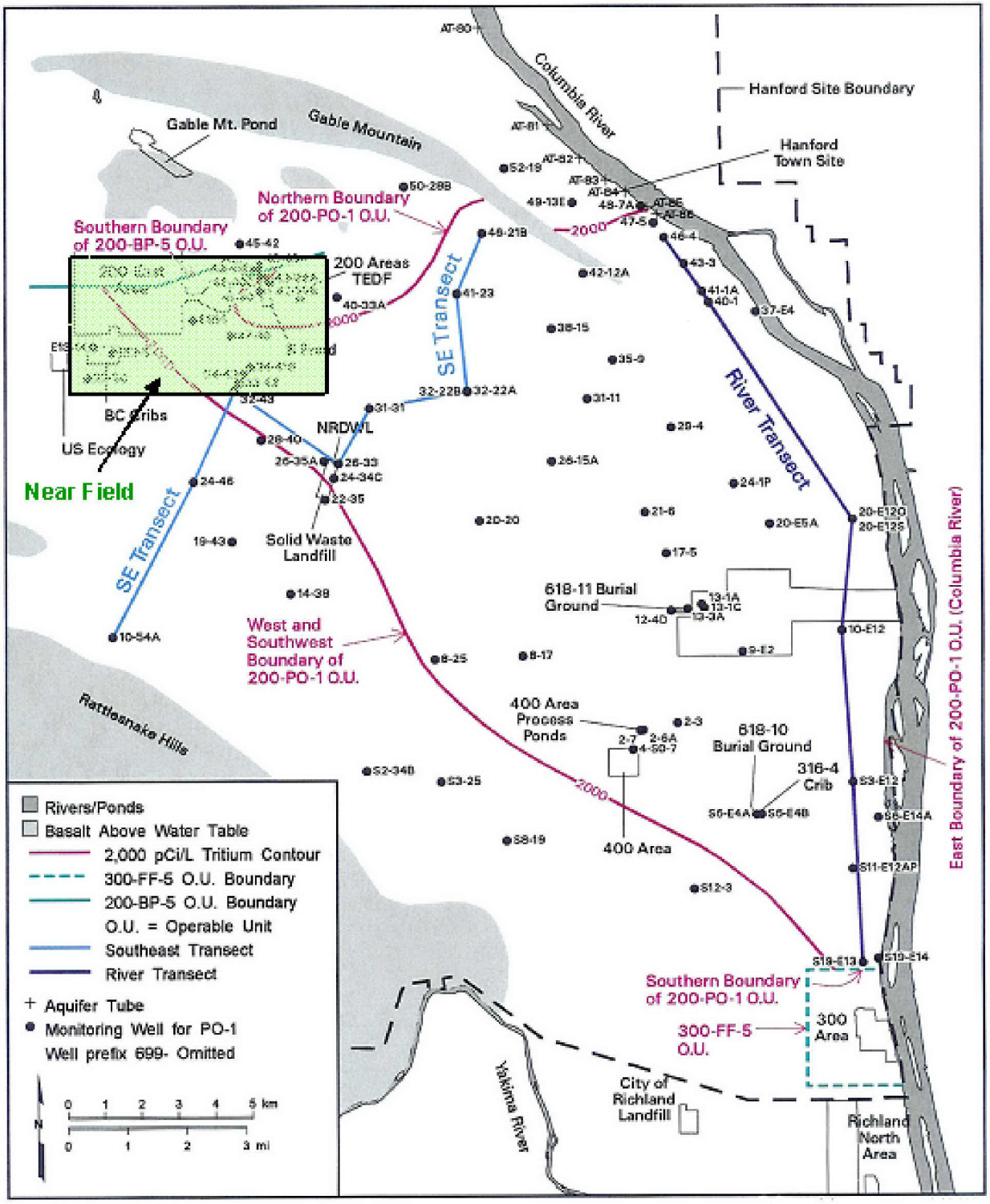

Figure 1-4. Location of 200-PO-1 Groundwater OU Boundaries at the Hanford Site

Groundwater monitoring of wells now in the 200-PO-1 Groundwater OU has been conducted at least as far back as the year 1955. Analytical data for these samples and their associated field quality control (QC) samples are maintained in the Hanford Environmental Information System (HEIS) database; the data are summarized in annual groundwater monitoring reports. The most recent of these reports is

DOE/RL-2013-22, *Hanford Site Groundwater Monitoring Report for 2012* (hereafter, these reports are referred to as "annual groundwater monitoring reports").

As discussed in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A, "Sampling and Analysis Plan for Remedial Investigation and Characterization of the 200-PO-1 Groundwater Operable Unit"), the historical groundwater monitoring data were used as input for DOE/RL-2007-31.

Groundwater sampling within the 200-PO-1 Groundwater OU is performed in accordance with the following facility-specific RCRA monitoring plans and 200-PO-1 Groundwater OU work plans and sampling and analysis plans (SAPs):

- DOE/RL-2003-04, *Sampling and Analysis Plan for the 200-PO-1 Groundwater Operable Unit*
- DOE/RL-2007-31, Appendix A
- DOE/RL-2012-59, *Sampling and Analysis Plan for Groundwater Surveillance Monitoring on the Hanford Site*
- PNNL-15315, *RCRA Assessment Plan for Single-Shell Tank Waste Management Area A-AX at the Hanford Site*
- RPP-PLAN-26534, *Integrated Disposal Facility Operational Monitoring Plan to Meet DOE Order 435.1*

1.2 Well Selection

In total, 168 monitoring and compliance wells were identified for inclusion in this DQA. These wells, which represent a subset of the total number of wells in the 200-PO-1 Groundwater OU, were selected because they had samples collected from the January 2008 to December 2013 timeframe. The list of the 168 wells is presented in Table 1-1 and their locations are shown in Figures 1-1 through 1-4.

The wells selected for sampling include those from the monitoring well network of the 200-PO-1 Groundwater OU, as originally established in DOE/RL-2003-04, through a review of data associated with the wells and any data results exceeding preliminary remediation goals. The monitoring well network also included characterization wells as described in DOE/RL-2007-31, Appendix A. Finally, wells associated with treatment, storage, and/or disposal facilities within the 200-PO-1 Groundwater OU were also added to the list of 168 wells.

1.3 Laboratories

The groundwater samples collected were analyzed at the following laboratories:

- 222-S Laboratory, located on the Hanford Site and managed by Advanced Technologies and Laboratories International, Inc. performed chemical analyses on selected groundwater samples.
- Eberline Services, located in Richmond, California, performed radionuclide analyses on selected groundwater samples.
- Lionville Laboratory, located in Exton, Pennsylvania, performed chemical analyses on select groundwater samples.
- Test America, Denver, located in Denver, Colorado, performed chemical analyses on selected groundwater samples.

- Test America, Knoxville, located in Knoxville, Tennessee, performed chemical analyses on selected groundwater samples.
- Test America, Richland, located in Richland, Washington, performed chemical and radionuclide analyses on selected groundwater samples.
- Test America, St. Louis, located in St. Louis, Missouri, performed chemical analyses on selected groundwater samples.
- Waste Sampling and Characterization Facility (WSCF) Analytical Laboratory performed chemical and radiological analyses on selected groundwater samples. WSCF is located on the Hanford Site and is operated by Mission Support Alliance for the U.S. Department of Energy (DOE), Richland Operations Office (RL).

Chapters 5 through 7 discuss the analytical data provided by these laboratories.

1.4 Analytical Methods

Groundwater samples were analyzed using the methods listed in Table 1-2. Both multi-component and single-component method-based analyses were used. Multi-component method-based analyses are those analyses typically based upon EPA methods, as applicable, which yield concentration data for multiple analytes in a single analysis. The analytes may include both target analytes and non-target analytes. Single-component method-based analyses are those analyses typically based upon EPA methods, as applicable, which yield concentration data for a single target analyte in a single analysis. Sample results were reported in the HEIS database.

Table 1-2. Summary of Analyte Classes and Associated Analytical Methods

Analytical Method	Parameter
General Chemistry	
EPA Method 2320	Alkalinity
EPA Method 310.1	
EPA Method 120.1	Conductivity
Field Method	
Field	pH
EPA Method 150.1	
EPA Method 4500B	
Field	Temperature
EPA Method 180.1	Turbidity
EPA Method 360.1	Dissolved oxygen
EPA Method 410.4	Chemical oxygen demand
EPA Method 9070	Total recoverable oil and grease
WTPH_DIESEL	TPH–diesel range organics

Table 1-2. Summary of Analyte Classes and Associated Analytical Methods

Analytical Method	Parameter
EPA Method 9020	Total organic halides
EPA Method 9034	Sulfide
EPA Method 9060	Total organic carbon
EPA Method 9223	Coliform
Field	Reduction-oxidation potential
Anions, Cations, and Ammonia	
EPA Method 350.1	Ammonia
EPA Method 9056	Anions
EPA Method 300.0	
EPA Method 300.7	Cations
EPA Method 9012	Cyanide
EPA Method 335.2	
EPA Method 4500E	
Metals	
EPA Method 6010	ICP metals
EPA Method 6020	ICP/MS metals
EPA Method 200.8	
EPA Method 7060 (Arsenic)	Graphite furnace atomic absorption metals
EPA Method 7131 (Cadmium)	
EPA Method 7421 (Lead)	
EPA Method 7196	Hexavalent chromium
EPA Method 7470 (Mercury)	Cold vapor atomic absorption
VOCs	
EPA Method 8260	GC/MS VOCs
EPA Method 8015	GC VOCs
SVOCs, Pesticides, PCBs, Herbicides, and Dioxins/Furans	
EPA Method 8270	GC/MS SVOCs
EPA Method 8040	GC phenolic
EPA Method 8041	
EPA Method 8081	Pesticides

Table 1-2. Summary of Analyte Classes and Associated Analytical Methods

Analytical Method	Parameter
EPA Method 8082	PCBs
EPA Method 8151	Herbicides
EPA Method 8290	Dioxins/furans
Radiochemistry	
EPA Method 906.0	LSC tritium
Separation and LSC	Tritium
EPA Method 9310	Gross alpha/gross beta
GPC	Gross alpha
Separation, Precipitation, and AEA	Americium-241
GPC	Gross beta
LSC	Carbon-14
Gamma Spectroscopy	Gamma emitters
Separation and Gamma Spectroscopy	Iodine-129
LSC	Nickel-63
Separation, Precipitation, and AEA	Neptunium-237
Separation and AEA	Pa-231
ICP/MS, KPA	Total uranium
Separation, Precipitation, and AEA	Plutonium isotopes
Separation and GPC	Radium isotopes
AEA	
Separation and LSC	Selenium-79
Separation, Precipitation, and GPC	Strontium-90
Separation and GPC	Technetium-99
Separation and LSC	
Separation, Precipitation, and AEA	Thorium isotopes
Precipitation and AEA	Uranium isotopes

Table 1-2. Summary of Analyte Classes and Associated Analytical Methods

Analytical Method			Parameter		
AEA	=	alpha energy analysis	LSC	=	liquid scintillation counting
EPA	=	U.S. Environmental Protection Agency	MS	=	mass spectrometry
GC	=	gas chromatography	PCB	=	polychlorinated biphenyl
GPC	=	gas proportional counting	SVOC	=	semivolatile organic compound
ICP	=	inductively coupled plasma	VOC	=	volatile organic compound
KPA	=	kinetic phosphorescence analysis			

1.5 Contaminants of Potential Concern

A data quality objectives (DQOs) process was conducted in 2007 to support the RI for the 200-PO-1 Groundwater OU (SGW-34011, *Data Quality Objectives Summary Report Supporting the 200-PO-1 Groundwater Operable Unit*). This DQO process resulted in a comprehensive list of COPCs, which was revised to a final list of 44 COPCs as shown in Table 1-3.

The COPCs were identified for RI/FS characterization (Table 1-3) or treatment, storage, and/or disposal process monitoring. Additional analytes have been reported by using a multi-component method-based analysis approach (as described in Section 1.4).

Table 1-3. 200-PO-1 Groundwater OU COPCs

Radionuclides	Metals	Inorganics
Gross alpha	Antimony	Fluoride
Iodine-129	Arsenic	Nitrate
Neptunium-237	Cadmium	Nitrite
Protactinium-231	Chromium	
Selenium-79	Lead	**Volatile Organics**
Strontium-90	Manganese	1,1,2,2-Tetrachloroethane
Technetium-99	Nickel	1,2-Dichloroethane
Tritium	Thallium	1,4-Dioxane
Uranium-234	Uranium	Benzene
Uranium-238	Vanadium	Bromodichloromethane
	Zinc	Carbon Tetrachloride
		Dibromochloromethane
		Hexane
		Methylene Chloride
		Tetrachloroethene
		Trichloroethene
		Vinyl Chloride

Table 1-3. 200-PO-1 Groundwater OU COPCs

		Semivolatile Organics and Pesticides
		2,4-Dinitrophenol
		Bis(2-ethylhexyl)phthalate
		Dieldrin
		Dimethoate
		Heptachlor
		Heptachlor Epoxide
		Nitrobenzene
		Pentachlorophenol

Source: DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit*.

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2 Purpose

The 200-PO-1 Groundwater OU DQA evaluates laboratory data for groundwater samples obtained from 168 wells in the 200-PO-1 OU from January 2008 through December 2013. Included in this data set are a limited number of groundwater samples that were also included in SGW-41557, *200-PO-1 Groundwater Operable Unit Data Quality Assessment*. Groundwater data included in this DQA were collected to support the 200-PO-1 Groundwater OU RI/FS process and other activities (e.g., monitoring data). This DQA is performed to serve the following purposes:

- Ensure that the data are of sufficient quality to provide an appropriate description of 200-PO-1 Groundwater OU conditions.
- Specifically assess the usability of the data set for 200-PO-1 Groundwater OU RI/FS-related activities, including nature and extent, risk assessment, and remedial alternative evaluation.

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3 Scope

The DQA completes the data lifecycle (i.e., planning, implementation, and assessment) that was initiated by the 200-PO-1 Groundwater OU RI/FS DQO process. A DQA report that evaluated groundwater samples collected from the 200-PO-1 Groundwater OU over the period of October 2004 through March 2009 was published in 2011 (SGW-41557). This report evaluates the requirements for the sampling program found in the 200-PO-1 Groundwater OU RI/FS Work Plan (DOE/RL-2007-31).

The current DQA supplements the first DQA performed for the 200-PO-1 Groundwater OU RI/FS described above. The data provided in this DQA include some groundwater samples evaluated in the previous report (from 2008 through 2009) and an additional 4 years of samples collected after the scope of the work plan and SAP were fulfilled by the initial field investigation.

The DQA process involves the scientific evaluation of data to determine if the data are of the right type, quality, and quantity to support the intended use. This DQA was performed in accordance with EPA/240/B-06/002 and EPA/240/B-06/003, *Data Quality Assessment: Statistical Methods for Practitioners* (EPA QA/G-9S). The DQA methodology consists of the following steps:

1. **Data verification** is the process of evaluating the completeness, correctness, conformance, and compliance of a specific data set against the requirements developed through the systematic planning process. It includes confirmation that the specified sampling and analytical requirements have been completed. This includes verification that the number, type, and location of all samples identified in the SAP have been collected and that all required measurements and analyses were performed.

2. **Data validation** is an analyte- and sample-specific process that extends the evaluation of data beyond method or contractual compliance (i.e., data verification) to determine the analytical quality of a specific data set. Data validation includes a determination, where possible, of the reasons for any failure to meet method, or contractual requirements, or QC requirements and an evaluation of the impact of such failure on the overall data set. It might include verification of required deliverables (e.g., minimum detection limits), verification of instrument calibrations, evaluation of analytical results based on method blanks, recovery of various internal standards, correctness of uncertainty calculations, identification and quantification of analytes, and the effect of quality deficiencies on the analytical sample data. Data validation is usually carried out on individual data packages (or sample delivery groups [SDGs]). However, for the purposes of this DQA, an electronic validation process is used and is based only on electronic deliverables received from the laboratories and conducted using a combination of automated and manual data review tools. An independent formal validation report was presented in SGW-41557.

3. **Data usability** is a determination of the adequacy of the entire data set to support a particular environmental decision and is based upon the verification and validation results. The assessment relates to the adequacy of the entire data set to support a specific and defined data need. The usability step involves assessing whether the process execution and the resulting data meet project quality objectives documented in the DQO summary report and the associated SAPs.

The DQA procedure is not intended to be a definitive analysis of a project or problem. Instead, it provides an initial assessment of the reasonableness of the data that have been generated through a systematic quality assurance (QA) and QC review process. This DQA focuses on the chemical and radionuclide contaminant monitoring data collected by groundwater sampling at the 200-PO-1 Groundwater OU between January 2008 and December 2013. The monitoring data have been examined to determine if they meet the analytical quality criteria outlined in DOE/RL-2003-04 and to determine if the data are adequate to support decision making.

The five-step DQA process described in EPA/240/B-06/002 must be followed when data are collected specifically to perform a statistical test. However, groundwater data for the 200-PO-1 Groundwater OU were collected to support RI/FS purposes and other activities such as monitoring which implements a judgmental sampling design. As described in EPA/240/B-06/002, steps 3 and 4 of the EPA five-step process do not apply when a judgmental sampling design is implemented. Although steps 3 and 4 are listed in Table 3-1 they were not performed for this DQA. Table 3-1 presents a crosswalk between the major sections in this DQA report and the EPA guidance document. This table shows how the elements of the DQA are consistent with EPA guidance.

Table 3-1. Data Quality Assessment Crosswalk

DQA Report Section	EPA/240/B-06/002
4.0 Data Verification	Step 2, Conduct Preliminary Data Review
4.1 Project Objectives	Step 1, Review DQOs and Sampling Design
5.1 Analytical Requirements	Step 1, Review DQOs and Sampling Design
4.1 Sample Design	Step 1, Review DQOs and Sampling Design
5.0 Data Validation (Data Quality Evaluation)	Step 2, Conduct Preliminary Data Review
6.0 Data Quality Evaluation 7.0 Hanford Groundwater Report Review 8.0 Field Quality Control	Step 3, Select Statistical Test (not applicable) Step 4, Verify the Assumptions (not applicable) Step 5, Draw Conclusions from the Data

Source: EPA/240/B-06/002, *Data Quality Assessment: A Reviewer's Guide* (EPA QA/G-9R).

DQA = data quality assessment

DQO = data quality objective

4 Data Verification

This chapter describes the DQOs established and associated completeness for the 200-PO-1 Groundwater OU. The data verification activities performed are also discussed.

4.1 Data Quality Objectives

The primary goals in developing DQOs for the 200-PO-1 Groundwater OU were to determine the environmental measurements necessary to refine the conceptual site model describing the groundwater contamination sources and the nature and extent of groundwater contamination, calculate exposure point concentrations to support the baseline risk assessment (BRA), and support evaluation of remedial alternatives. The primary question to be resolved was whether the data from the groundwater wells are of sufficient quality to be used in the RI/FS decision-making process. Within this larger question are the additional concerns for QC demonstrations, sufficiency of the data, quantity and circumstances of outliers, and data trends. The data set that addresses this question consists of the analytical data for those analytes identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The COPCs are identified in Table 1-3.

To ensure that these objectives would be met, the DQO process was used to evaluate data needs and develop the sampling design to collect the needed data (SGW-34011). Analytical parameters and associated QC criteria were specified as part of the DQO process. The DQO results were used to develop the SAP for the 200-PO-1 Groundwater OU RI, which was approved by EPA, the Washington State Department of Ecology, and RL.

4.1.1 Completeness

Completeness objectives are documented in the DQA for the 200-PO-1 Groundwater OU (SGW-41557). The report documents the outcome of the DQO process for the 200-PO-1 Groundwater OU. Chapter 4 of SGW-41557 summarizes the completeness associated with the DQOs (problem statement, decision rules, field QC requirements, and uncertainty limits) and the resulting sample design.

Section 4 of SGW-41557 concluded that the SAP (Appendix A of DOE/RL-2007-31) went into effect in October 2006. SGW-41557 assesses the completeness of the analytical data for samples from the 63 characterization wells for the period from the implementation of DOE/RL-2007-31, Appendix A to the DQA initiation point, March 25, 2009. The sampling design within Appendix A of DOE/RL-2007-31 was not fully implemented. The number of analyses completed relative to the number called for in Appendix A of DOE/RL-2007-31 may represent an uncertainty associated with temporal or spatial representativeness of the collected data set.

4.2 Data Verification Activities

As described in Chapter 3, data verification is the process of evaluating the completeness, correctness, conformance, and compliance of a specific data set against the requirements developed through the systematic planning process or as described in the relevant SAP. This process is conducted by Sample Management and Reporting personnel prior to the data quality evaluation step of the DQA process. Data verification activities are initiated upon receipt of three different types of data packages (radiological screening data package, priority data package, and final data package). The activities that are performed for all samples collected as part of the data verification process are summarized below:

- All groundwater samples collected and submitted to contracted laboratories are entered into the Sample and Data Tracking (SDT) system.
- Each data package is compared against the requested analyses in the SDT system:

- Include all HEIS sample numbers assigned to the SDG, ensure that all requested analytical results are present, and ensure that the sampling authorization form number is correctly identified on the data package.
- Resolve discrepancies by reviewing the chain-of-custody associated with the data package.
- Notify the problem discrepancy reporting coordinator regarding data package discrepancies.
- Update the data package status table with data package receipt date.

At a minimum, 25 percent of the final data packages received and processed by the Sample Management and Reporting group are subjected to verification to ensure completeness and accuracy of the data package, except for those that were generated throughout the request for data review (RDR) process. The percentage of non-RDR data or data packages verified may vary in accordance with the number of problems and discrepancies that are being noted. If, at any time, there is an increase in problems and discrepancies, the percentage of verification can be increased as wells. The data verification steps that are performed on final data packages are listed in Table 4-1.

Data verification activities are performed for all characterization and monitoring data collected for the Hanford Site. Results from these sample analyses are evaluated and compiled into an annual Hanford Site groundwater monitoring report. The report includes an appendix that provides an overview of the QA/QC information generated to support these programs. The results of the Hanford Groundwater Report review are summarized in Chapter 7 of this report.

Table 4-1. Summary of Data Verification Activities for Final Data Packages

Actionee	Step and Action
Sample Management and Reporting group	Distribute final data package to data verifier.
Data verifier	Receive the hardcopy data package.
	Access the Sample Data Tracking system and initiate a verification "open" entry in the "Data Package Status" table.
	Enter current date and initials in the provided columns.
	Verify the following on the hardcopy data package: • Sample receipt documentation verification a. Chain of custody forms are present b. Sample authorization form numbers are correct c. Sample receipt checklist (if applicable is present d. Number of samples listed are correct e. Problems noted during sample receipt are noted in narrative f. Sample/analysis date/times are correct • Analytical data review a. Sample holding times were not exceeded b. Analyses date/time sequences are correct c. Results are qualified/flagged appropriately • Narrative or cover letter evaluation a. Number of samples provided is correct b. Problems encountered during analyses are noted in narrative c. Qualifiers/flags discussed when applicable d. General information provided is correct/applicable • Quality control confirmation a. Quality control recoveries are acceptable b. Precision levels are acceptable c. Tracers/carrier recoveries are acceptable d. Accuracy is acceptable
	Conduct a review of data received in an electronic data deliverable by comparing the analytical results found in the Hanford Environmental Information System database to the corresponding data package hardcopy analytical results.

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5 Data Quality Evaluation

This chapter describes data quality evaluation activities that were performed for the 200-PO-1 Groundwater OU data set. It describes the analytical performance requirements, describes the laboratory QA/QC criteria, and lists the documents that were used to guide the data quality evaluation activities. Three additional activities were performed to determine the usability of the data set, including the evaluation of detection limits, development and evaluation of data trend charts, and evaluation of annual groundwater monitoring reports.

5.1 Laboratory Performance Requirements

Groundwater results are evaluated by comparing the electronic laboratory QC information to established laboratory QC performance requirements.

Laboratory analytical performance requirements are listed in Tables 5-1 and 5-2. The analytical performance requirements listed in Table 5-1 (radiological analytes) and Table 5-2 (chemicals) are provided for only those analytes identified as COPCs (see Table 1-3). Although uranium-234 and uranium-238 were identified as COPCs in the work plan and are listed in Table 5-2, groundwater samples were not analyzed for these radioisotopes.

Table 5-1. Groundwater Radiological Analytical Performance Requirements

COPC	CAS Number	Background Value[a,b]	Comparison Value[c] (pCi/L)	MDL (pCi/L)	MS/MSD % RPD	MS/MSD % Recovery
Radionuclides						
Gross Alpha	12587-46-1	No value	15	3	≤30	70-130
Iodine-129	150-46-84-1	9.00E-07	1	1	≤30	70-130
Neptunium-237	13994-20-2	No value	15	1	≤30	70-130
Protactinium-231	14331-85-2	No value	—	1	≤30	70-130
Selenium-79	7782-49-2	No value	—	30	≤30	70-130
Strontium-90	10098-97-2	0.0010	8.0	2	≤30	70-130
Technetium-99	14133-76-7	0.83	900	15	≤30	70-130
Tritium	10028-17-8	119	20,000	400	≤30	70-130
Uranium-234	U-234	No value	—	1	≤30	70-130
Uranium-238	U-238	No value	—	1	≤30	70-130

a. DOE/RL-96-61, *Hanford Site Background: Part 3, Groundwater Background*.

b. Represents activity levels from filtered groundwater samples; total concentrations from unfiltered samples are not available.

c. 40 CFR 141, "National Primary Drinking Water Regulations."

CAS = Chemical Abstracts Service
COPC = contaminant of potential concern
MDL = method detection limit
MS = matrix spike
MSD = matrix spike duplicate

Table 5-2. Groundwater Chemical Analytical Performance Requirements

COPC	CAS Number	Background[a] (µg/L)	Comparison Value[b] (µg/L)	MDL (µg/L)	LCS/LCSD % RPD	LCS/LCSD % Recovery	MS/MSD % RPD	MS/MSD % Recovery
Metals								
Antimony	7440-36-0	55	6.0	60/6	≤20[f]	80-120[f]	≤30	70-130
Arsenic	7440-38-2	7.9	7.9	100/10	≤20[f]	80-120[f]	≤30	70-130
Cadmium	7440-43-9	0.92	5.0/0.25	5/2	≤20[f]	80-120[f]	≤30	70-130
Chromium (Total)	7440-47-3	2.4	100/65	10/2	≤20[f]	80-120[f]	≤30	70-130
Lead	7439-92-1	0.92	15/2.1	50/5	≤20[f]	80-120[f]	≤30	70-130
Manganese	7439-96-5l	39	384	5	≤20[f]	80-120[f]	≤30	70-130
Nickel	7440-02-0	1.6	100/52	40	≤20[f]	80-120[f]	≤30	70-130
Thallium	7440-28-0	1.7	0.50	50/5	≤20[f]	80-120[f]	≤30	70-130
Uranium	7440-61-1	9.9	30	0.08	≤20[f]	80-120[f]	≤30	70-130
Vanadium	7440-62-2	12	80	25/10	≤20[f]	80-120[f]	≤30	70-130
Zinc	7440-66-6	22	4,800/91	10	≤20[f]	80-120[f]	≤30	70-130
Inorganics								
Fluoride	16984-48-8	1,047	960	500	≤20[f]	80-120[f]	≤30	70-130
Nitrate	14797-55-8	26,871	45,000	250	≤20[f]	80-120[f]	≤30	70-130
Nitrite	14797-65-0	93.7	3,300	250	≤20[f]	80-120[f]	≤30	70-130

Table 5-2. Groundwater Chemical Analytical Performance Requirements

COPC	CAS Number	Background[a] (µg/L)	Comparison Value[b] (µg/L)	MDL (µg/L)	LCS/LCSD % RPD	LCS/LCSD % Recovery	MS/MSD % RPD	MS/MSD % Recovery
Volatile Organics								
1,1,2,2-Tetrachloreothane	630-20-6	N/A	0.22	5	≤20[f]	Laboratory-specific	≤30	50-150
1,2-Dichloroethane	107-06-2	N/A	0.48	5/1.5	≤20[f]	Laboratory-specific	≤30	50-150
1,4-Dioxane	123-91-1	N/A	0.44	500	≤20[f]	Laboratory-specific	≤30	50-150
Benzene	71-43-2	N/A	0.8	5/1.5	≤20[f]	Laboratory-specific	≤30	50-150
Bromodichloromethane	75-27-4	N/A	0.71	5	≤20[f]	Laboratory-specific	≤30	50-150
Dibromochloromethane	128-48-1	N/A	0.52	5	≤20[f]	Laboratory-specific	≤30	50-150
Hexane	110-54-3	N/A	480	5	≤20[f]	Laboratory-specific	≤30	50-150
Methylene Chloride	75-09-2	N/A	5.0	5	≤20[f]	Laboratory-specific	≤30	50-150
Tetrachloroethene	127-18-4	N/A	5	5	≤20[f]	Laboratory-specific	≤30	50-150
Trichloroethene	79-01-6	N/A	0.95	5(2)	≤20[f]	Laboratory-specific	≤30	50-150
Vinyl Chloride	75-01-4	N/A	—	10/5	≤20[f]	Laboratory-specific	≤30	50-150

Table 5-2. Groundwater Chemical Analytical Performance Requirements

COPC	CAS Number	Background[a] (µg/L)	Comparison Value[b] (µg/L)	MDL (µg/L)	LCS/LCSD % RPD	LCS/LCSD % Recovery	MS/MSD % RPD	MS/MSD % Recovery
Semivolatile Organics								
2,4-Dinitrophenol	51-28-5	N/A	32	25	≤20[f]	Laboratory-specific	≤30	50-150
Bis(2-ethylhexyl) phthalate	117-81-7	N/A	6.0	10	≤20[f]	Laboratory-specific	≤30	50-150
Dimethoate	60-51-5	N/A	3.2	20	≤20[f]	Laboratory-specific	≤30	50-150
Nitrobenzene	98-95-3	N/A	16	10	≤20[f]	Laboratory-specific	≤30	50-150
Pentachlorophenol	87-86-5	N/A	—	10	≤20[f]	Laboratory-specific	≤30	50-150
Organochlorine Pesticides								
Dieldrin	60-57-1	N/A	0.0055/0/0019	0.1/0.05	≤20[f]	Laboratory-specific	≤30	50-150
Heptachlor	76-44-8	N/A	0.019/0.0038	0.05	≤20[f]	Laboratory-specific	≤30	50-150
Heptachlor Epoxide	1024-57-3	N/A	0.0048/0.0038	0.05	≤20[f]	Laboratory-specific	≤30	50-150

Table 5-2. Groundwater Chemical Analytical Performance Requirements

COPC	CAS Number	Background[a] (µg/L)	Comparison Value[b] (µg/L)	MDL (µg/L)	LCS/LCSD % RPD	LCS/LCSD % Recovery	MS/MSD % RPD	MS/MSD % Recovery

a. DOE/RL-96-61, *Hanford Site Background: Part 3, Groundwater Background*.

b. Represents concentrations from filtered groundwater samples; total concentrations from unfiltered samples are not available.

c. The lowest value from:

40 CFR 141.62, "Maximum Contaminant Levels for Inorganic Contaminants."

WAC 173-201A, "Water Quality Standards for Surface Waters of the State of Washington."

WAC 173-340-720, "Model Toxics Control Act—Cleanup," "Ground Water Cleanup Standards."

WAC 173-340-900, "Tables."

WAC 246-290-310, "Group A Public Water Supplies," "Maximum Contaminant Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs)."

d. Precision and accuracy requirements are identified and defined in the referenced EPA procedures. Accuracy criteria are for associated batch MS percentage recoveries. Evaluations based on statistical control of LCS also are performed. Precision criteria are based on batch laboratory replicate MS sample analyses or replicate sample analyses.

e. Accuracy criteria are the minimum for associated batch LCS percentage recoveries. Laboratories must meet statistically based control if more stringent. Additional analyte-specific evaluations also performed for MS and surrogates as appropriate to the method. Precision criteria as based on laboratory replicate MS sample analyses.

f. For EPA Method 200.8, see EPA-600/R-94/111, *Methods for the Determination of Metals in Environmental Samples*, Supplement G. For EPA Methods 300.0, 335, and 353, see EPA-600/4-79-020, *Methods for Chemical Analysis of Water and Wastes*. For four-digit EPA methods, see SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, Third Edition; Final Update IV-B*.

f. Precision and accuracy criteria listed in this table are typically for soil samples; however, the appropriate criteria for water samples were used by the laboratories.

CAS = Chemical Abstracts Service
COPC = contaminant of potential concern
EPA = U.S. Environmental Protection Agency
LCS = laboratory control sample
LSCD = laboratory control sample duplicate
MDL = method detection limit
MS = matrix spike
MSD = matrix spike duplicate
N/A = not applicable
RPD = relative percent difference

5.1.1 Laboratory Quality Assurance and Quality Control Requirements

The QA/QC requirements govern nearly all aspects of analytical laboratory operation, including instrument procurement, maintenance, calibration, and operation. Laboratory requirements for internal QC checks are performed as appropriate for the analytical method at a rate of one per sample per SDG or one in 20 (5 percent), whichever is more frequent. Laboratory internal QC checks include the following:

- **Laboratory contamination:** Each analytical batch contains a laboratory (method) blank (material of composition similar to that of the samples with known/minimal contamination of the analytes of interest) carried through the complete analytical process. The method blank is used to evaluate false-positive results in samples caused by contamination during handling at the laboratory.

- **Analytical accuracy:** For most analyses, a known quantity of representative analytes of interest (matrix spike [MS]) is added to a separate aliquot of a sample from the analytical batch. The known amount added is compared to the actual measured amount to calculate the percent recovery. The recovery percentage of the added MS is used to evaluate analytical accuracy. For analyses not amenable to MS techniques (e.g., gamma energy analysis [GEA]) or where analytical recovery is evaluated from recovery of the tracers or carriers, the accuracy of the laboratory preparation and analysis is evaluated via QC reference samples (e.g., laboratory control spike). In addition to the MS recovery, surrogate compounds are used to evaluate accuracy in the various organic analyses (e.g., volatile organic compounds [VOCs], semivolatile organic compounds [SVOCs], etc.). Surrogate compounds with instrumental responses that are typical of the other analytes are added into the blanks, samples, and MSs, and the recovery is evaluated.

- **Analytical precision:** Separate aliquots removed from the sample containers (duplicate samples) are analyzed for each analytical batch for radionuclides and metals. The duplicate sample results are compared to the original sample results, which are evaluated as relative percent differences (RPDs) and are used to assess analytical precision. Alternately, a matrix spike duplicate (MSD) may be used for assessing precision of metals and organic parameters. For a MSD, a separate aliquot is removed from the same sample container and spike in the same manner as the MS. The results, not recoveries, from the MS/MSD are used to calculate a RPD and to assess precision.

- **Laboratory control sample (LCS) or QC reference sample (analytical accuracy):** An LCS is prepared from an independent standard at a concentration other than that used for calibration but within the calibration range. The LCS is taken through all of the preparation and analysis steps used in the method. The LCS or QC reference sample measures the accuracy of the analytical process. Depending on how it is introduced into the analysis, the LCS is sometimes referred to as a blank spike sample.

In addition to the laboratory QA/QC requirements listed above, sensitivity criteria are also evaluated. Sensitivity identifies any laboratory data that do not meet the SAP-required reporting limits and also compares the results to applicable decision thresholds (e.g., comparison values).

Laboratories are also subject to periodic and random audits of laboratory performance, systems, and overall program. Audits check that the laboratories are performing to laboratory contract requirements. No audits were performed with respect to the data analyses as part of this project.

5.1.2 Comparison Values

Comparison values are derived from readily available sources of chemical-specific applicable or relevant and appropriate requirements (ARARs) or risk-based concentrations using default exposure assumptions.

Groundwater results obtained from monitoring wells located inland from the Columbia River are compared to drinking water and groundwater cleanup standards developed for the protection of human health. Groundwater results obtained from monitoring wells that have the potential to discharge to the Columbia River (near-river) are compared to drinking water standards, groundwater cleanup standards, and surface water quality standards and criteria developed for the protection of human health or aquatic receptors.

The following sources identify the chemical-specific ARARs obtained from federal regulations:

- Maximum contaminant levels (MCLs), secondary MCLs, and non-zero MCL goals established under the *Safe Drinking Water Act of 1974*
- Ambient water quality criteria established under Section 304 or Section 303 of the *Clean Water Act of 1977*

The following sources identify chemical-specific ARARs obtained from Washington State regulations:

- WAC 173-340-720, "Model Toxics Control Act—Cleanup," "Ground Water Cleanup Standards"
- WAC 246-290-310, "Group A Public Water Supplies," "Maximum Contaminant Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs)"
- WAC 173-201A, "Water Quality Standards for Surface Waters of the State of Washington"

The comparison values selected for the DQA process represent the lowest of the chemical-specific ARARs or risk-based concentrations that are protective of human and aquatic receptors and that were available at the time of the assessment. These comparison values, along with their basis, are provided in Table 5-3.

5.1.3 Laboratory and Data Quality Evaluation Flags

During the generation of environmental analytical data, any of several qualification flags may be assigned to an individual result. The HEIS database carries qualification flags applied by the laboratory and through the validation process. Analytical data associated with this report show all of these applied qualification flags. Potential flags and their meanings are provided in Table 5-4.

5.2 Data Quality Evaluation Review Process

The data quality evaluation process is an analyte- and sample-specific process that extends the evaluation of the DQA described in Chapter 4. The main focus of data quality review is to determine the data quality in terms of accomplishing the measurement quality objectives. Data quality review is generally performed by person(s) independent of the activity which is being evaluated.

A formal data validation effort was not performed for the analytical data included in this DQA report. However, a formal validation report was submitted with the original DQA report submitted for the 200-PO-1 Groundwater OU (SGW-41557). Hardcopy data validation reports were not requested from the contracted laboratories; rather, a low-level data quality review process was performed to evaluate the quality of the data set. This process is similar to the Stage 2A verification and validation described in EPA 540-R-08-005, *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. Each laboratory electronically submits the following sample-related QC information for each SDG:

- Dates and times of analysis
- Method blank or preparation blank results
- Surrogate recoveries
- Deuterated monitoring compound recoveries
- LCS recoveries
- Duplicate analyses RPD results
- MS/MSD recoveries and RPD results

5.2.1 Guidance Documents

The following guidance documents were used for the data quality evaluation process:

- EPA/240/B-06/002
- EPA/240/B-06/003
- EPA/240/R-02/004, *Guidance on Environmental Data Verification and Data Validation* (EPA QA/G-8)
- EPA 540-R-08-005 (OSWER No. 9200.1-85)
- USEPA-540-R-08-01, *National Functional Guidelines for Superfund Organic Methods Data Review* (OSWER 9240.1-48)
- USEPA-540-R-10-011, *National Functional Guidelines for Inorganic Superfund Data Review* (OSWER 9240.1-51)
- EPA-540-R-11-016, *National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review* (OSWER 9240.1-53)

Table 5-3. List of Target Analytes with Comparison Values for the 200-PO-1 Groundwater OU

Analyte Name	CAS Number	Units	Human Health Comparison Value	Comparison Level Basis	Human Health and Aquatic Comparison Value	Comparison Level Basis
1,1,2,2-Tetrachloroethane	630-20-6	µg/L	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,1,1-Trichloroethane	71-55-6	µg/L	200	WAC 173-340-720(4)(b)(iii)(A) and (B)	200	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,1-Dichloroethane	75-34-3	µg/L	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,1-Dichloroethene	75-35-4	µg/L	7.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	7.0	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	35822-46-9	µg/L	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	µg/L	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	µg/L	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	µg/L	2.24E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	2.24E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)
2,3,4,6,7,8-Hexachlorodibenzofuran	40321-76-4	µg/L	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	µg/L	2.24E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	2.24E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,2-Dichloroethane	107-06-2	µg/L	0.48	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.48	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,4-Dichlorobenzene	106-46-7	µg/L	8.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	8.1	WAC 173-340-720(4)(b)(iii)(A) and (B)
1,4-Dioxane	123-91-1	µg/L	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)
2,4-Dinitrophenol	51-28-5	µg/L	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	32	WAC 173-340-720(4)(b)(iii)(A) and (B)
2,6-Dinitrotoluene	606-20-2	µg/L	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	16	WAC 173-340-720(4)(b)(iii)(A) and (B)
2-Hexanone	591-78-6	µg/L	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	40	WAC 173-340-720(4)(b)(iii)(A) and (B)
Acetone	67-64-1	µg/L	7,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	7,200	WAC 173-340-720(4)(b)(iii)(A) and (B)
Acetophenone	98-86-2	µg/L	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	800	WAC 173-340-720(4)(b)(iii)(A) and (B)
Acrolein	107-02-8	µg/L	4	WAC 173-340-720(4)(b)(iii)(A) and (B)	3.0	Clean Water Act, freshwater CCC
Aluminum	7429-90-5	µg/L	16,000	WAC 173-340-720(4)(b)(iii)(A) and (B)	87	Clean Water Act, freshwater CCC
Americium-241	14596-10-2	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Antimony	7440-36-0	µg/L	6.0	40 CFR 141, federal MCL	6.0	40 CFR 141, federal MCL
Arsenic	7440-38-2	µg/L	7.9	DOE/RL-96-61, Table ES-1	7.9	DOE/RL-96-61, Table ES-1
Barium	7440-39-3	µg/L	2,000	40 CFR 141, federal MCL	2,000	40 CFR 141, federal MCL
Benzene	71-43-2	µg/L	0.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.8	WAC 173-340-720(4)(b)(iii)(A) and (B)

Table 5-3. List of Target Analytes with Comparison Values for the 200-PO-1 Groundwater OU

Analyte Name	CAS Number	Units	Human Health Comparison Value	Comparison Level Basis	Human Health and Aquatic Comparison Value	Comparison Level Basis
Benzyl Alcohol	100-51-6	µg/L	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	800	WAC 173-340-720(4)(b)(iii)(A) and (B)
Beryllium	7440-41-7	µg/L	4.0	40 CFR 141, federal MCL	4.0	40 CFR 141, federal MCL
Bis(2-ethylhexyl) phthalate	117-81-7	µg/L	6.0	40 CFR 141, federal MCL	6.0	40 CFR 141, federal MCL
Boron	7440-42-8	µg/L	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)
Bromodichloromethane	75-27-4	µg/L	0.71	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.71	WAC 173-340-720(4)(b)(iii)(A) and (B)
Bromoform	75-25-2	µg/L	5.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	5.5	WAC 173-340-720(4)(b)(iii)(A) and (B)
Bromomethane	74-83-9	µg/L	11	WAC 173-340-720(4)(b)(iii)(A) and (B)	11	WAC 173-340-720(4)(b)(iii)(A) and (B)
Butylbenzylphthalate	85-68-7	µg/L	46	WAC 173-340-720(4)(b)(iii)(A) and (B)	46	WAC 173-340-720(4)(b)(iii)(A) and (B)
Cadmium	7440-43-9	µg/L	5	40 CFR 141, federal MCL	0.25	Clean Water Act -- Freshwater CCC
Carbon Disulfide	75-15-0	µg/L	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	800	WAC 173-340-720(4)(b)(iii)(A) and (B)
Carbon Tetrachloride	56-23-5	µg/L	0.625	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.63	WAC 173-340-720(4)(b)(iii)(A) and (B)
Carbon-14	14762-75-5	pCi/L	2,000	40 CFR 141, federal MCL	2,000	40 CFR 141, federal MCL
Cesium-137	10045-97-3	pCi/L	200	40 CFR 141, federal MCL	200	40 CFR 141, federal MCL
Chloride	16887-00-6	µg/L	250,000	40 CFR 141, federal MCL	250,000	40 CFR 141, federal MCL
Chloroform	67-66-3	µg/L	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)
Chromium	7440-47-3	µg/L	100	40 CFR 141, federal MCL	65	Clean Water Act, freshwater CCC
Cobalt	7440-48-4	µg/L	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)
Cobalt-60	10198-40-0	pCi/L	100	40 CFR 141, federal MCL	100	40 CFR 141, federal MCL
Copper	7440-50-8	µg/L	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	9	Clean Water Act, freshwater CCC
Cyanide	57-12-5	µg/L	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)
Dibromochloromethane	128-48-1	µg/L	0.52	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.52	WAC 173-340-720(4)(b)(iii)(A) and (B)
Dieldrin	60-57-1	µg/L	0.0055	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.0019	40 CFR 131, freshwater CCC
Dimethoate	60-51-5	µg/L	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)
Ethyl Methacrylate	97-63-2	µg/L	720	WAC 173-340-720(4)(b)(iii)(A) and (B)	720	WAC 173-340-720(4)(b)(iii)(A) and (B)
Ethylbenzene	100-41-4	µg/L	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)
Europium-154	15585-10-1	pCi/L	60	40 CFR 141, federal MCL	60	40 CFR 141, federal MCL
Europium-155	14391-16-3	pCi/L	600	40 CFR 141, federal MCL	600	40 CFR 141, federal MCL
Fluoride	16984-48-8	µg/L	960	WAC 173-340-720(4)(b)(iii)(A) and (B)	960	WAC 173-340-720(4)(b)(iii)(A) and (B)
Gross Alpha	12587-46-1	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Hexavalent Chromium	18540-29-9	µg/L	48	WAC 173-340-720(4)(b)(iii)(A) and (B)	10	40 CFR 141, freshwater CCC
Heptachlor	76-44-8	µg/L	0.019	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.0038	40 CFR 131, freshwater CCC

Table 5-3. List of Target Analytes with Comparison Values for the 200-PO-1 Groundwater OU

Analyte Name	CAS Number	Units	Human Health Comparison Value	Comparison Level Basis	Human Health and Aquatic Comparison Value	Comparison Level Basis
Heptachlor Epoxide	1024-57-3	µg/L	0.0048	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.0038	40 CFR 131, freshwater CCC
Hexane	110-54-3	µg/L	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	480	WAC 173-340-720(4)(b)(iii)(A) and (B)
Iodine-129	150-46-84-1	pCi/L	1	40 CFR 141, federal MCL	1	40 CFR 141, federal MCL
Iron	7439-89-6	µg/L	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	1,000	Clean Water Act, freshwater CCC
Lead	7439-92-1	µg/L	15	40 CFR 141, federal MCL	2.1	WAC 173-201A
Lithium	7439-93-2	µg/L	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	32	WAC 173-340-720(4)(b)(iii)(A) and (B)
Manganese	7439-96-5	µg/L	384	WAC 173-340-720(4)(b)(iii)(A) and (B)	384	WAC 173-340-720(4)(b)(iii)(A) and (B)
Mercury	7487-94-7	µg/L	2	40 CFR 141, federal MCL	0.012	40 CFR 131, freshwater CCC
Methyl Methacrylate	80-62-6	µg/L	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)
Methyl Methanesulfonate	66-27-3	µg/L	0.88	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.88	WAC 173-340-720(4)(b)(iii)(A) and (B)
Methylene Chloride	75-09-2	µg/L	5.0	40 CFR 141, federal MCL	5.0	40 CFR 141, federal MCL
Molybdenum	7439-98-7	µg/L	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	80	WAC 173-340-720(4)(b)(iii)(A) and (B)
Neptunium-237	13994-20-2	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Nickel	7440-02-0	µg/L	100	40 CFR 141, federal MCL	52	Clean Water Act, freshwater CCC
Nitrate	14797-55-8	µg/L	45,000	40 CFR 141, federal MCL	45,000	40 CFR 141, federal MCL
Nitrite	14797-65-0	µg/L	3,300	40 CFR 141, federal MCL	3,300	40 CFR 141, federal MCL
Nitrobenzene	98-95-3	µg/L	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	16	WAC 173-340-720(4)(b)(iii)(A) and (B)
n-Nitrosodi-n-dipropylamine	621-64-7	µg/L	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)
Octachlorodibenzofuran	39001-02-0	µg/L	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)
Octachlorodibenzo-p-dioxin	3268-87-9	µg/L	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)
Pentachlorphenol	87-86-5	µg/L	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)
Phenol	108-95-2	µg/L	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)
Plutonium-238	13981-16-3	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Plutonium-239/240	PU-239/240	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Protactinium-231	14331-85-2	pCi/L	15	40 CFR 141, federal MCL	15	40 CFR 141, federal MCL
Selenium	7782-49-2	µg/L	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	5.0	Clean Water Act -- Freshwater CCC
Selenium-79	7782-49-2	pCi/L	7.3	EPA Method 2013-	7.3	EPA Method 2013-
Silver	7440-22-4	µg/L	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	2.6	WAC 173-201A
Strontium	7440-24-6	µg/L	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)
Strontium-90	10098-97-2	pCi/L	8.0	40 CFR 141, federal MCL	8.0	40 CFR 141, federal MCL

Table 5-3. List of Target Analytes with Comparison Values for the 200-PO-1 Groundwater OU

Analyte Name	CAS Number	Units	Human Health Comparison Value	Comparison Level Basis	Human Health and Aquatic Comparison Value	Comparison Level Basis
Styrene	100-42-5	µg/L	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)
Sulfate	14808	µg/L	250,000	40 CFR 141, secondary MCL	250,000	40 CFR 141, secondary MCL
Technetium-99	14133-76-7	pCi/L	900	40 CFR 141, federal MCL	900	40 CFR 141, federal MCL
Tetrachloroethene	127-18-4	µg/L	5	40 CFR 141, federal MCL	5.0	40 CFR 141, federal MCL
Thallium	7440-28-0	µg/L	0.5	40 CFR 141, federal MCLG	0.50	40 CFR 141, federal MCLG
Tin	7440-31-5	µg/L	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)
Toluene	108-88-3	µg/L	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	640	WAC 173-340-720(4)(b)(iii)(A) and (B)
Total Petroleum Hydrocarbons-Diesel Range	TPHDIESEL	µg/L	500	WAC 173-340-900, Table 720-1	500	WAC 173-340-900, Table 720-1
Tributyl Phosphate	126-73-8	µg/L	9.72	WAC 173-340-720(4)(b)(iii)(A) and (B)	9.72	WAC 173-340-720(4)(b)(iii)(A) and (B)
Trichloroethene	79-01-6	µg/L	0.951	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.951	WAC 173-340-720(4)(b)(iii)(A) and (B)
Trichloromonofluorometahne	75-69-4	µg/L	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)
Tritium	10028-17-8	pCi/L	20,000	40 CFR 141, federal MCL	20,000	40 CFR 141, federal MCL
Uranium	7440-61-1	µg/L	30	40 CFR 141, federal MCL	30	40 CFR 141, federal MCL
Uranium-234	U-234	pCi/L	No value	—	No value	—
Uranium-238	U-238	pCi/L	No value	—	No value	—
Vanadium	7440-62-2	µg/L	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	80	WAC 173-340-720(4)(b)(iii)(A) and (B)
Vinyl Chloride	75-01-4	µg/L	0.061	WAC 173-340-720(4)(b)(iii)(A) and (B)	0.061	WAC 173-340-720(4)(b)(iii)(A) and (B)
Xylenes (Total)	1330-20-7	µg/L	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)
Zinc	7440-66-6	µg/L	4,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	91	WAC 173-201A

Note: Shading denotes those analytes that were identified as COPCs in the *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (DOE/RL-2007-31, Appendix A).

40 CFR 141.61, "National Primary Drinking Water Regulations," "Maximum Contaminant Levels for Organic Contaminants."

40 CFR 141.62, "Maximum Contaminant Levels for Inorganic Contaminants."

40 CFR 141.66, "Maximum Contaminant Levels for Radionuclides."

40 CFR 143.3, "National Secondary Drinking Water Regulations," "Secondary Maximum Contaminant Levels."

DOE/RL-96-61, *Hanford Site Background: Part 3, Groundwater Background*.

WAC 173-201A, "Water Quality Standards for Surface Waters of the State of Washington."

WAC 173-340-720, "Model Toxics Control Act—Cleanup," "Ground Water Cleanup Standards."

WAC 173-340-900, "Tables."

WAC 246-290-310, "Group A Public Water Supplies," "Maximum Contaminant Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs)."

CAS = Chemical Abstracts Service
CCC = criterion continuous concentration
EPA = U.S. Environmental Protection Agency
MCL = maximum contaminant level
MCLG = maximum contaminant level guideline

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Table 5-4. Data Qualification Flags

Flag	Definition
Laboratory-Applied Flags	
B	**Inorganics and Wetchem*:** The analyte was detected at a value less than the contract-required detection limit but greater than or equal to the MDL. The data should be considered usable for decision-making purposes. **Organics:** The analyte was detected in both the associated QC blank and in the sample. **Radionuclides:** The associated QC sample blank has a result greater than or equal to two times the MDA and, after corrections, result is greater than or equal to the MDA for this sample.
C	**Inorganics and Wetchem:** The analyte was detected in both the sample and the associated QC blank, and the sample concentration was less than or equal to five times the blank concentration. The data should be considered unusable for decision-making purposes.
D	**Inorganics and Wetchem:** The analyte was detected in both the sample and the associated QC blank, and the sample concentration was less than or equal to five times the blank concentration. The data should be considered unusable for decision-making purposes.
E	**Inorganics:** Reported value is estimated because of interference. See any comments that may be in the laboratory report case narrative. **Organics:** Concentration exceeds the calibration range of for gas chromatography/mass spectrometry (GC/MS).
N	**All:** The spike sample recovery is outside control limits. The data should be considered usable for decision-making purposes.
J	**Organics:** Indicates the constituent was analyzed for and detected. The associated value is estimated because of a QC deficiency identified during data validation. The data should be considered usable for decision-making purposes.
O	One or more QC criteria have not been met. Please see the applicable case narrative or data exception report for details.
Q	**Organics – dioxins and PCB congeners only:** Estimated maximum concentration. Used if one of the qualitative identification criteria is not met (e.g., Cl isotopic rations outside theoretical range).
T	**Organics – GC/MS only:** Spike and/or spike duplicate sample recovery is outside control limits.
U	**All:** The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.
X	**All:** The result-specific translation of this qualifier code is provided in the data report and/or case narrative.
Data Verification Applied Flags	
U	The constituent was analyzed for but was not detected. The data should be considered usable for decision making purposes.
UJ	The constituent was analyzed for and was not detected. Because of a QC deficiency identified during data validation, the value reported may not accurately reflect the reporting limit. The data should be considered usable for decision making purposes.
J	Indicates that the constituent was analyzed for and was detected. The associated value is estimated because of a QC deficiency identified during data validation. The data should be considered usable for decision making purposes.

Table 5-4. Data Qualification Flags

Flag	Definition
J+	Indicates that the constituent was analyzed for and was detected. The associated value is estimated with a suspected positive bias because of a QC deficiency identified during data validation. The data should be considered usable for decision making purposes.
J-	Indicates that the constituent was analyzed for and was detected. The associated value is estimated with a suspected negative bias because of a QC deficiency identified during data validation. The data should be considered usable for decision making purposes.
R	Indicates that the constituent was analyzed for and was detected; however, because of an identified QC deficiency the data should be considered unusable for decision making purposes.
UJ	Indicates that the constituent was analyzed for and was not detected. Because of a QC deficiency identified during data validation, the value reported may not accurately reflect the MDL. The data should be considered usable for decision making purposes.
UR	Indicates that the constituent was analyzed for and was not detected; however, because of an identified QC deficiency the data should be considered unusable for decision making purposes.

* Wetchem is a group of analytical methods that do not use instrumentation but are associated with “wet” chemical reactions.

GC/MS = gas chromatography/mass spectrometry
MDA = minimum detectable activity
MDL = method detection limit
PCB = polychlorinated biphenyl
QC = quality control

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6 Data Quality Evaluation Results

This chapter summarizes the review of the laboratory QC information that is associated with the 200-PO-1 groundwater OU data set from the past six years. Laboratory contamination (Section 6.1), laboratory precision (Section 6.2), laboratory accuracy (Section 6.3), and the sensitivity analysis (Section 6.4) are discussed in this chapter. As discussed in Chapter 3 of this report, the purpose of Step 5 of the DQA process is to draw conclusions from the data. Steps 3 and 4 of the DQA process were not applicable because groundwater data for the 200-PO-1 Groundwater OU were collected using a judgmental sample design. As such, the results presented in Chapters 6, 7, and 8 are used to draw conclusions about the usability of the data.

The data set consists of 146,342 laboratory QC results. This includes 35,744 laboratory blanks (preparation or method blanks), 6,033 laboratory duplicate pairs, 30,479 LCSs, 49,868 MSs, and 24,218 individual surrogate results. The laboratory QC elements were evaluated against the criteria listed in Table 6-1.

Table 6-1. Laboratory Quality Control Acceptance Criteria

QC Element	Acceptance Criteria
Laboratory Blanks	For general chemical parameters, ammonia, anions, metals, and volatile organic compounds, the laboratory blank limit is the MDL, IDL, or MDA. However, for semivolatile organic compounds, the QC limit is two times the MDL. For radiochemical constituents, the QC limit is two times the MDA.
Laboratory Duplicates	Laboratory duplicates with at least one result greater than or equal to five times the MDL or MDA must have an RPD less than or equal to 20 to be considered acceptable.
Laboratory Control Samples	Laboratory control sample percent recovery must be between the laboratory-provided minimum control limit and maximum control limit.
Laboratory Spikes	Laboratory spikes where the sample result is less than or equal to four times the spiking concentration are evaluated by comparing the percent recovery with the minimum and maximum control limits provided by the laboratory. In addition, where the sample result is less than or equal to four times the spiking concentration, the MS/MSD must have an RPD less than or equal to 20 percent.

IDL = instrument detection limit
MDA = minimum detectable activity
MDL = method detection limit
MS = matrix spike
MSD = matrix spike duplicate
QC = quality control
RPD = relative percent difference

6.1 Laboratory Contamination

Hanford Site laboratory contracts require that laboratory method blanks be analyzed with each batch of up to 20 samples (minimum 5 percent frequency). In total, 37,028 laboratory results were reported with the laboratory QC associated with the 200-PO-1 Groundwater OU data set. This represents 25.8 percent of the total number of sample results.

Of these 37,028 laboratory results, 69 individual analytes reported an unacceptable positive result, indicating potential laboratory contamination. In total, 7,684 laboratory blank results were associated with

these 69 analytes. Of these results, 516 or 1.4 percent reported an unacceptable positive result, indicating potential laboratory contamination.

Table 6-2 lists the total number of laboratory blanks reported with the 200-PO-1 OU groundwater data set by analyte class. Table 6-3 shows the distribution of analytes with potential laboratory contamination in laboratory blank results exceeding QC criteria. Of the 69 analytes, ammonium ion, 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-hexachlorodibenzofuran, 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin, 1,2,3,7,8-pentachlorodibenzofuran, 1,2,3,7,8-pentachlorodibenzo-p-dioxin, 2,3,4,6,7,8-hexachlorodibenzofuran, 2,3,4,7,8-pentachlorodibenzofuran, heptachlorodibenzofurans, heptachlorodibenzo-p-dioxins, hexachlorodibenzofurans, hexachlorodibenzo-p-dioxin, octachlorodibenzofuran, octachlorodibenzo-p-dioxin, pentachlorodibenzofurans, and pentachlorodibenzo-p-dioxins all had 100 percent of their results out of limits.

Table 6-2. Total Laboratory Blank Results by Analyte Class

Analyte Class	Results
Anions	3,322
General Chemistry	639
Metals	10,871
Radiochemistry	2,737
Semivolatile Organic Compounds	4,637
Volatile Organic Compounds	14,822
Total	**37,028**

Table 6-3. Distribution of Contamination in Laboratory Blank Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits[a]	Percent Out of Limits
Ammonium Ion	Anions	1	1	100
Chloride	Anions	21	3	14.3
Fluoride	Anions	137	4	2.9
Nitrogen in Nitrate	Anions	151	7	4.6
Sulfate	Anions	136	4	2.9
Chemical Oxygen Demand	General chemistry	4	1	25
Total Organic Carbon	General chemistry	123	8	6.5
Total Organic Halides	General chemistry	30	9	30
Aluminum	Metals	88	3	3.4

Table 6-3. Distribution of Contamination in Laboratory Blank Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits[a]	Percent Out of Limits
Antimony	Metals	274	6	2.2
Arsenic	Metals	208	7	3.4
Bismuth	Metals	51	3	5.9
Boron	Metals	51	2	3.9
Calcium	Metals	484	39	8.1
Chromium	Metals	298	8	2.7
Copper	Metals	320	15	4.7
Iron	Metals	485	33	6.8
Lead	Metals	102	1	0.98
Magnesium	Metals	467	44	9.4
Manganese	Metals	189	3	1.6
Molybdenum	Metals	88	2	2.3
Nickel	Metals	377	9	2.4
Phosphorus	Metals	51	3	5.9
Potassium	Metals	339	32	9.4
Selenium	Metals	88	3	3.4
Silicon	Metals	51	11	21.6
Silver	Metals	363	32	8.8
Sodium	Metals	498	88	17.7
Strontium	Metals	84	3	3.6
Thallium	Metals	90	3	3.3
Uranium	Metals	3	1	33.3
Vanadium	Metals	242	6	2.5
Zinc	Metals	393	17	4.3
Gross Alpha	Radiochemistry	61	1	1.6
Gross Beta	Radiochemistry	62	2	3.2
Iodine-129	Radiochemistry	43	2	4.7
Potassium-40	Radiochemistry	4	1	25
Strontium-90	Radiochemistry	21	2	9.5

Table 6-3. Distribution of Contamination in Laboratory Blank Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits[a]	Percent Out of Limits
Uranium-234	Radiochemistry	2	1	50
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxin/furan	1	1	100
1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxin/furan	1	1	100
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxin/furan	1	1	100
1,2,3,7,8-Pentachlorodibenzofuran	Dioxin/furan	1	1	100
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxin/furan	1	1	100
2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxin/furan	1	1	100
2,3,4,7,8-Pentachlorodibenzofuran	Dioxin/furan	1	1	100
Heptachlorodibenzofurans	Dioxin/furan	1	1	100
Heptachlorodibenzo-p-dioxins	Dioxin/furan	1	1	100
Hexachlorodibenzofurans	Dioxin/furan	1	1	100
Hexachlorodibenzo-p-dioxin	Dioxin/furan	1	1	100
Octachlorodibenzofuran	Dioxin/furan	1	1	100
Octachlorodibenzo-p-dioxin	Dioxin/furan	1	1	100
Pentachlorodibenzofurans	Dioxin/furan	1	1	100
Pentachlorodibenzo-p-dioxins	Dioxin/furan	1	1	100
1,2-Dichloroethane	VOC	44	1	2.3
1,4-Dichlorobenzene	VOC	44	1	2.3
2-Hexanone	VOC	28	1	3.6
4-Methyl-2-pentanone	VOC	54	1	1.9
Acetone[b]	VOC	282	10	3.5
Benzene	VOC	48	2	4.2
Bromomethane	VOC	39	9	23
Carbon Disulfide	VOC	64	9	14.1
Chloroform	VOC	64	4	6.3
Chloromethane	VOC	43	15	34.9
Iodomethane	VOC	28	3	10.7
Methylene Chloride	VOC	267	9	3.4
Styrene	VOC	40	4	10

Table 6-3. Distribution of Contamination in Laboratory Blank Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits[a]	Percent Out of Limits
Tetrachloroethene	VOC	72	4	5.6
Trichloroethene	VOC	72	8	11.1
	Total	**7,684**	**516**	

a. For general chemical parameters, ammonia and anions, metals, and VOCs, the quality control limit for method blanks is the method detection limit. For semivolatile organic compounds, the quality control limit is twice the method detection limit. For radiochemical constituents, the quality control limit is twice the minimum detectable activity.

b. The quality control limit for this analyte is five times the method detection limit.

VOC = volatile organic compound

A total of 819 individual results required qualification as a result of laboratory contamination. Tables A-3 through A-8 in Appendix A list the sample results that required qualification for years 2008 through 2013.

6.2 Laboratory Precision

Precision is the degree of agreement among repeated measurements of the same characteristic. It may be determined by calculating the standard deviation, or RPD, among samples taken from the same place at the same time. The laboratory precision is determined by the difference between duplicate sample pair results or between MS/MSD pairs. Normally, sample duplicates are used for metals and anions while MSs/MSDs are used for organic analyses.

In total, 6,124 laboratory duplicates were associated with the 200-PO-1 Groundwater OU data set, which represents 4.3 percent of the total number of 200-PO-1 Groundwater OU results. This does not satisfy the minimum QC requirement of one in 20.

Of these 6,124 duplicates, 16 individual analytes had RPDs that exceeded the QC acceptance criteria listed in Table 6-1. In total, 1,310 laboratory duplicate pair results were associated with these 16 analytes. Of the 1,310 pairs collected, 407 were evaluated, and 55 (0.92 percent of total) exceeded laboratory precision criteria.

Table 6-4 lists the total number of laboratory duplicates associated with the 200-PO-1 Groundwater OU data set by analyte class. Table 6-5 shows the distribution of the individual analytes in the laboratory duplicate pairs with RPDs exceeding QC criteria.

6.3 Laboratory Accuracy

Accuracy measures how close the results are to a “true” or expected value and can be determined by comparing the analysis of a standard or reference sample to its actual value. Three types of QC are used to assess accuracy. The LCS serves as to monitor of the overall performance of each step during the analysis, including the sample preparation. The MSs and surrogate spikes are used to provide information about the effect of each sample matrix on the sample preparation procedures and the measurement methodology.

Table 6-4. Total Laboratory Duplicate Results by Analyte Class

Analyte Class	Results
Anions	3,017
General Chemistry	365
Radiochemistry	2,697
Metals	45
Semivolatile Organic Compounds	—
Volatile Organic Compounds	—
Total	**6,124**

6.3.1 Laboratory Control Samples

There were 31,432 LCS/laboratory control sample duplicate (LCSD) results reported for the 200-PO-1 Groundwater OU data set, which represents 21.9 percent of the total number of results.

Of these 31,432 LCS/LCSD results, 105 individual analytes exceeded the acceptance criteria in Table 6-1. In total, 5,970 LCS/LCSD results were associated with these 105 analytes; 1,214 of the 5,970 results were LCSDs. Of these 5,970 results, 269 results or 0.86 percent of the total exceeded QC requirements for the LCS/LCSD percent recovery to be within the minimum and maximum laboratory control limits. Of the 1,214 LCSD results, 98 or 0.31 percent had RPDs that were outside the QC acceptance criteria identified in Table 6-1. Table 6-6 lists the total number of LCS/LCSD results reported for the 200-PO-1 Groundwater OU data set by analyte class. Table 6-7 shows the LCS/LCSDs that exceeded QC limits by analyte.

The LCS/LCSD results reported for the 200-PO-1 Groundwater OU generally have sample results from more than one project associated with them. Although LCS/LCSD criteria may have been exceeded for an analytical batch, samples included in this DQA may not have been affected or required sample qualification. Sample results associated with LCS/LCSDs that were outside laboratory-specified QC acceptance criteria are discussed below by year.

In 2008, 39 LCS/LCSD percent recoveries exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 16 to 89.5 percent on the low end and 122 to 300.7 percent on the high end. There were 95 sample results associated with these LCS/LCSDs. The high-end exceedances included vinyl acetate, isobutyl alcohol, and calcium. A total of 40 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-10 (Appendix A) lists the sample results that required qualification for the year 2008.

Table 6-5. Distribution of Analytes in Laboratory Duplicate Pairs with RPDs Exceeding QC Criteria

Analyte Name	Analyte Class	Number Laboratory Duplicates Collected	Number Laboratory Duplicates Evaluated*	Number with RPD Out of Limits	Percent RPDs Out of Limit	Range of RPD Exceedances
Ammonium Ion	Anions	8	2	2	100	47.5-101.5
Fluoride	Anions	78	13	1	7.7	200
Nitrogen in Nitrite	Anions	85	3	1	7.7	26
Coliform Bacteria	General chemistry	4	2	2	100	31.3 102
Total Organic Carbon	General chemistry	1	1	1	100	51
Total Organic Halides	General chemistry	8	4	3	75	31-125
Gross Alpha	Radiochemistry	294	26	7	26.9	22.4-203.3
Gross Beta	Radiochemistry	343	172	15	7.9	20.3-116.4
Iodine-129	Radiochemistry	192	57	11	18.5	22.1-77.4
Potassium-40	Radiochemistry	27	1	1	100	215.8
Strontium-90	Radiochemistry	26	4	1	25	20.7
Technetium-99	Radiochemistry	49	17	1	5.9	106.7
Tritium	Radiochemistry	168	93	3	3.2	20-133
Uranium-234	Radiochemistry	13	6	3	50	23.3-28.5
Uranium-235	Radiochemistry	2	1	1	100	28.6
Uranium-238	Radiochemistry	12	5	2	40	25-46.5
Total		**1,310**	**407**	**55**	**13.5**	

* Meets the evaluation criterion that the sample-duplicate pair has at least one result greater than or equal to five times the method detection limit or the minimum detectable activity.

RPD = relative percent difference

Table 6-6. Total Laboratory Control Samples (LCS/LCSD) by Analyte Class

Analyte Class	Results
Anions	3,161
General Chemistry	1,172
Metals	10,890
Radiochemistry	2,016
Semivolatile Organic Compounds	3,264
Volatile Organic Compounds	10,929
Total	**31,432**

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Table 6-7. LCS Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total LCS/LCSD Analyzed	Number LCS/LCSD Out of Limits*	Number of LCSD	Number of RPDs Out of Limits
Cyanide	Anions	4	1	—	—
Sulfate	Anions	105	1	—	—
Oil and Grease	General chemistry	1	1	—	—
Total Petroleum Hydrocarbons-Diesel	General chemistry	20	1	—	—
Arsenic	Metals	40	1	—	—
Iron	Metals	104	1	—	—
Potassium	Metals	209	2	—	—
Silver	Metals	141	1	—	—
Sodium	Metals	75	1	—	—
Thallium	Metals	88	3	—	—
Uranium	Metals	25	1	—	—
Gross Alpha	Radiochemistry	235	11	—	—
Gross Beta	Radiochemistry	206	6	—	—
Radium-228	Radiochemistry	14	1	—	—
Strontium-90	Radiochemistry	83	4	—	—
Technetium-99	Radiochemistry	18	1	—	—
Total Alpha Energy Emitted from Radium	Radiochemistry	11	3	—	—

Table 6-7. LCS Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total LCS/LCSD Analyzed	Number LCS/LCSD Out of Limits*	Number of LCSD	Number of RPDs Out of Limits
Tritium	Radiochemistry	174	9	—	—
Uranium-235	Radiochemistry	7	4	—	—
1,2,4-Trichlorobenzene	SVOC	25	2	2	1
1,2-Dichlorobenzene	SVOC	15	1	1	—
1,3-Dichlorobenzene	SVOC	15	1	1	—
1,4-Dichlorobenzene	SVOC	104	4	30	1
1,4-Dioxane	SVOC	11	1	3	—
2,3,4,6-Tetrachlorophenol	SVOC	17	3	—	—
2,4,5-Trichlorophenol	SVOC	23	1	1	—
2,4,6-Trichlorophenol	SVOC	23	1	1	—
2,4-Dichlorophenol	SVOC	27	1	1	—
2,4-Dimethylphenol	SVOC	34	1	2	1
2,4-Dinitrophenol	SVOC	66	6	2	--
2,6-Dichlorophenol	SVOC	8	1	—	—
2-Chlorophenol	SVOC	27	1	1	—
2-Methylphenol (cresol, o-)	SVOC	27	1	1	—
2-Nitrophenol	SVOC	27	1	1	—
2-Picoline	SVOC	2	1	—	—
3-Nitroaniline	SVOC	15	1	1	—
3+4 Methylphenol (cresol,m+p)	SVOC	8	1	—	—
4,4'-DDE(Dichlorodiphenyldichloroethylene)	Pesticide	4	1	—	—
4,4'-DDT(Dichlorodiphenyltrichloroethane)	Pesticide	4	1	—	—
4,6-Dinitro-2-methylphenol	SVOC	23	1	1	—
4-Chloro-3-methylphenol	SVOC	27	1	1	—
4-Chloroaniline	SVOC	15	1	1	—
4-Nitrophenol	SVOC	41	1	2	1
Acenaphthene	SVOC	19	1	1	—

Table 6-7. LCS Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total LCS/LCSD Analyzed	Number LCS/LCSD Out of Limits*	Number of LCSD	Number of RPDs Out of Limits
Aldrin	Pesticide	6	2	1	—
Bis(2-chloroethyl)ether	SVOC	15	1	1	—
Dieldrin	Pesticide	4	1	—	—
Dinoseb(2-secButyl-4,6-dinitrophenol)	Pesticide	14	3	—	—
Endosulfan II	Pesticide	4	1	—	—
Endosulfan Sulfate	Pesticide	4	1	—	—
Endrin	Pesticide	4	1	—	—
Endrin Aldehyde	Pesticide	4	1	—	—
Heptachlor	Pesticide	4	1	—	—
Heptachlor Epoxide	Pesticide	4	1	—	—
Hexachloroethane	SVOC	15	1	1	—
Methoxychlor	SVOC	4	1	—	—
n-Nitrosodimethylamine	SVOC	2	1	—	—
n-Nitrosodi-n-dipropylamine	SVOC	19	1	1	—
Naphthalene	SVOC	6	—	1	1
Pentachlorophenol	SVOC	56	7	2	1
Phenol	SVOC	27	2	1	—
Tributyl Phosphate	SVOC	14	2	—	—
1,1-Dichloroethane	VOC	138	3	29	—
1,1-Dichloroethene	VOC	183	4	23	1
1,1,1-Trichloroethane	VOC	28	1	12	—
1,1,2,2-Tetrachloroethane	VOC	21	—	10	1
1,2-Dibromo-3-chloropropane	VOC	21	1	10	1
1,2-Dibromoethane	VOC	40	1	12	—
1,2-Dichloroethane	VOC	94	2	34	1
1,2-Dichloropropane	VOC	21	1	10	—
1,2,3-Trichloropropane	VOC	4	1	2	—
1,4-Dichlorobenzene	VOC	182	8	52	—

Table 6-7. LCS Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total LCS/LCSD Analyzed	Number LCS/LCSD Out of Limits*	Number of LCSD	Number of RPDs Out of Limits
1,4-Dioxane	VOC	201	3	71	9
1-Butanol	VOC	198	4	70	11
2-Butanone	VOC	204	—	72	14
2-Hexanone	VOC	69	1	26	2
4-Methyl-2-pentanone	VOC	66	—	30	2
Acetone	VOC	169	12	61	5
Acetonitrile	VOC	61	1	22	3
Acrolein	VOC	72	18	26	10
Benzene	VOC	157	6	28	—
Bromodichloromethane	VOC	8	2	4	—
Bromomethane	VOC	69	18	26	2
Carbon Disulfide	VOC	232	9	63	3
Carbon Tetrachloride	VOC	30	1	13	—
Chlorobenzene	VOC	54	2	10	—
Chloroform	VOC	38	2	10	—
Chloromethane	VOC	40	3	12	1
cis-1,2-Dichloroethylene	VOC	72	2	10	—
cis-1,3-Dichloropropene	VOC	4	1	2	—
Ethyl Cyanide	VOC	161	2	62	4
Ethyl Methacrylate	VOC	21	—	10	1
Iodomethane	VOC	69	10	26	1
Isobutyl Alcohol	VOC	73	4	28	5
Methacrylonitrile	VOC	29	—	14	2
Methyl Methacrylate	VOC	69	1	26	3
Methylene Chloride	VOC	143	5	51	—
Styrene	VOC	40	1	12	—
Tetrachloroethene	VOC	66	3	22	1
Tetrahydrofuran	VOC	167	4	62	4

Table 6-7. LCS Results Exceeding QC Criteria

Analyte Name	Analyte Class	Total LCS/LCSD Analyzed	Number LCS/LCSD Out of Limits*	Number of LCSD	Number of RPDs Out of Limits
Trans-1,2-Dichloroethylene	VOC	91	3	11	—
trans-1,3-Dichloropropene	VOC	56	5	20	—
Trans-1,4-Dichloro-2-butene	VOC	29	—	14	2
Vinyl Acetate	VOC	69	6	26	3
Vinyl Chloride	VOC	38	1	18	—
	Totals	**5,970**	**269**	**1,214**	

* LCS percent recovery must be between the laboratory-provided minimum control limit and maximum control limit.

LCS = laboratory control sample
LCSD = laboratory control sample duplicate
RPD = relative percent difference
SVOC = semivolatile organic compound
VOC = volatile organic compound

In 2009, there were 30 LCS/LCSD percent recoveries that exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 32 to 79.3 percent on the low end and 128 to 190 percent on the high end. In total, 40 sample results were associated with these LCS/LCSDs. The analytes that had the highest exceedances were bromomethane and acetone. A total of 6 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-11 (Appendix A) lists the sample results that required qualification for the year 2009.

In 2010, there were 106 LCS/LCSD percent recoveries that exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 10.2 to 79 percent on the low end and 120 to 239 percent on the high end. In total, 250 sample results were associated with these LCSs. Acrolein had 4 exceedances over 200 percent. A total of 40 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-12 (Appendix A) lists the sample results that required qualification for the year 2010.

In 2011, there were 22 LCS/LCSD percent recoveries that exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 1.3 to 79.8 percent on the low end and 108 to 150 percent on the high end. In total, 63 sample results were associated with these LCSs. Acrolein had the highest exceedance with a percent recovery of 150 percent. A total of 19 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-13 (Appendix A) lists the sample results that required qualification for the year 2011.

In 2012, there were 10 LCS/LCSD percent recoveries that exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 50.3 to 84.8 percent on the low end and 127.8 to 164.5 percent on the high end. In total, 54 sample results were associated with these LCSs. Carbon disulfide, *cis*-1,3-dichloropropene, 1,1-dichloroethane, and 1,1-dichloroethene exceeded on the high end. A total of 9 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-14 (Appendix A) lists the sample results that required qualification for the year 2012.

In 2013, there were 15 LCS/LCSD percent recoveries that exceeded the QC acceptance criteria. Percent recovery exceedances ranged from 71 to 79.1 percent on the low end and 120.4 percent on the high end for technetium-99. In total, 17 sample results were associated with these LCSs. A total of 8 individual results required qualification as a result of LCS recoveries reported outside QC acceptance criteria. Table A-15 (Appendix A) lists the sample results that required qualification for the year 2013.

In summary, there were 519 sample results associated with LCS/LCSD exceedances. This represents less than 1 percent of the total results in the 200-PO-1 Groundwater OU data set. A total of 122 individual sample results required qualification as a result of LCS recoveries reported outside QC acceptance criteria.

6.3.2 Laboratory Matrix Spike/Matrix Spike Duplicates

Laboratory spike recovery is also used as a measure of laboratory accuracy and precision. For the 200-PO-1 Groundwater OU data set, there were 51,327 individual spiked sample results.

Of these 51,327 MS/MSD percent recoveries, 139 individual analytes exceeded the minimum and/or maximum control limits set up by the laboratory. In total, 24,706 MS/MSD results were associated with these 139 analytes; 12,175 of the 24,706 results were MSDs. Of these MS results, 658exceeded the minimum and/or maximum control limits set up by the laboratory. Of the 12,175 MSD results, 501 or 0.98 percent of the total reported RPDs did not meet the acceptance criteria listed in Table 6-1. The total laboratory MSs/MSDs reported with the 200-PO-1 Groundwater OU data set are listed by analyte class in Table 6-8. Table 6-9 shows the 139 analytes that reported laboratory MS results outside of the QC acceptance criteria.

Table 6-8. Total Laboratory Spikes (MS/MSD) by Analyte Class

Analyte Class	Results
Anions	6,178
General Chemistry	1,831
Metals	19,471
Radiochemistry	511
Semivolatile Organic Compounds	5,490
Volatile Organic Compounds	17,846
Total	**51,327**

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Chloride	Anions	1,157	36	569	8
Cyanide	Anions	10	2	5	—
Fluoride	Anions	807	9	395	3

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Ammonium ion	Anions	9	1	4	—
Nitrate	Anions	743	8	365	1
Nitrite	Anions	598	4	299	3
Sulfate	Anions	721	12	351	4
Oil and Grease	General chemistry	1	1	—	—
Total Organic Carbon	General chemistry	623	9	265	3
Total Organic Halides	General chemistry	634	4	296	7
Total Petroleum Hydrocarbons –Diesel	General chemistry	40	1	20	—
Barium	Metals	238	4	119	1
Calcium	Metals	802	10	401	2
Chromium	Metals	238	2	119	—
Iron	Metals	746	13	373	6
Magnesium	Metals	220	4	110	1
Manganese	Metals	214	1	107	—
Potassium	Metals	556	11	278	2
Silver	Metals	740	17	370	7
Sodium	Metals	564	7	282	—
Strontium	Metals	138	4	69	—
Thallium	Metals	82	1	41	—
Uranium	Metals	35	3	16	—
Zinc	Metals	142	2	71	1
Technetium-99	Radiochemistry	37	1	—	—
Tritium	Radiochemistry	105	3	—	—
1,2,4-Trichlorobenzene	SVOC	52	4	26	1
1,4-Dichlorobenzene	SVOC	232	8	116	5
1,4-Dioxane	SVOC	14	2	7	1

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
2,3,4,6-Tetrachlorophenol	SVOC	66	4	33	7
2,4,5-Trichlorophenol	SVOC	94	4	47	6
2,4,5-T(2,4,5-Trichlorophenoxyacetic acid)	Herbicide	2	1	1	—
2,4,6-Trichlorophenol	SVOC	94	4	47	6
2,4-Dichlorophenol	SVOC	147	3	73	5
2,4-DB(4-(2,4-Dichlorophenoxy)butanoic acid)	Herbicide	2	1	1	—
2,4-Dimethylphenol	SVOC	110	4	55	6
2,4-Dinitrophenol	SVOC	130	12	65	11
2,4-Dinitrotoluene	SVOC	52	—	26	2
2,6-Dichlorophenol	SVOC	66	4	33	6
2-Chlorophenol	SVOC	113	5	56	6
2-Methylphenol (cresol, *o*-)	SVOC	147	4	73	6
2-Nitrophenol	SVOC	147	3	73	8
2-Picoline	SVOC	36	1	18	3
3-Nitroaniline	SVOC	22	—	11	1
3,3'-Dichlorobenzidine	SVOC	28	1	14	1
3+4 Methylphenol (cresol, m+p)	SVOC	98	4	49	6
4,4'-DDD (Dichlorodiphenyldichloroethane)	Pesticide	8	1	4	—
4,4’-DDE (Dichlorodiphenyldichloroethylene)	Pesticide	28	3	14	—
4,4’-DDT(Dichlorodiphenyltrichloroethane)	Pesticide	28	2	14	1
4,6-Dinitro-2-methylphenol	SVOC	94	5	47	8
4-Bromophenylphenyl ether	SVOC	22	1	11	—
4-Chloro-3-methylphenol	SVOC	113	2	56	7
4-Chloroaniline	SVOC	28	—	14	4
4-Nitrophenol	SVOC	175	14	87	19
Aldrin	Pesticide	20	1	10	—
Alpha-BHC	Pesticide	28	2	14	—

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Benzo(a)pyrene	SVOC	22	1	11	—
Benzo(ghi)perylene	SVOC	22	—	11	1
Beta-1,2,3,4,5,6-hexachlorocyclohexane (beta-BHC)	Pesticide	20	1	10	—
Bis(2-ethylhexyl)phthalate	SVOC	70	—	35	3
Delta-BHC	Pesticide	20	1	10	—
Dibenz[a,h]anthracene	SVOC	22	—	11	1
Dieldrin	Pesticide	8	1	4	—
Dinoseb(2-secButyl-4,6-dinitrophenol)	Herbicide	70	6	35	8
Endosulfan I	Pesticide	20	2	10	—
Endosulfan II	Pesticide	8	1	4	—
Endosulfan Sulfate	Pesticide	28	2	14	—
Endrin	Pesticide	8	2	4	—
Endrin Aldehyde	Pesticide	8	1	4	1
Heptachlor	Pesticide	28	10	14	3
Heptachlor Epoxide	Pesticide	20	1	10	—
Hexachlorobenzene	SVOC	22	1	11	1
Hexachlorocyclopentadiene	SVOC	22	2	11	—
Hexachloroethane	SVOC	22	2	11	—
Hexachlorophene	SVOC	4	—	2	1
Indeno(1,2,3-cd)pyrene	SVOC	22	—	11	1
Methoxychlor	SVOC	8	1	4	—
Naphthalene	SVOC	24	—	12	1
n-Nitrosodimethylamine	SVOC	8	2	4	1
Pentachlorophenol	SVOC	215	10	107	17
Phenol	SVOC	215	6	107	11
Pyrene	SVOC	28	—	14	1
Tributyl Phosphate	SVOC	30	2	15	1

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Tris-2-chloroethyl phosphate	SVOC	6	—	3	2
1,1,1,2-Tetrachloroethane	VOC	64	—	32	1
1,1,1-Trichloroethane	VOC	438	9	219	4
1,1,2,2-Tetrachloroethane	VOC	66	10	33	1
1,1-Dichloroethane	VOC	438	10	219	7
1,1-Dichloroethene	VOC	716	14	358	5
1,1,2-Trichloroethane	VOC	394	4	197	3
1,2-Dibromo-3-chloropropane	VOC	98	3	49	3
1,2-Dibromoethane	VOC	64	1	32	2
1,2-Dichloroethane	VOC	302	8	151	4
1,2-Dichloroethene (Total)	VOC	64	1	32	1
1,2-Dichloropropane	VOC	64	—	32	1
1,4-Dichlorobenzene	VOC	208	8	104	4
1,4-Dioxane	VOC	326	7	163	30
1-Butanol	VOC	334	12	167	30
2-Butanone	VOC	280	4	140	15
2-Chloroethyl Vinyl Ether	VOC	2	2	1	—
2-Hexanone	VOC	80	2	40	2
4-Methyl-2-pentanone	VOC	304	4	152	9
Acetone	VOC	372	21	186	26
Acetonitrile	VOC	90	2	45	9
Acrolein	VOC	88	32	44	6
Allyl Chloride	VOC	64	3	32	3
Benzene	VOC	598	4	299	4
Bromodichloromethane	VOC	74	3	37	1
Bromoform	VOC	66	1	33	2
Bromomethane	VOC	88	17	44	4
Carbon Disulfide	VOC	356	11	178	5

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Carbon Tetrachloride	VOC	244	8	122	4
Chlorobenzene	VOC	336	1	168	1
Chloroethane	VOC	64	5	32	1
Chloroform	VOC	182	7	91	3
Chloromethane	VOC	64	4	32	3
Chloroprene	VOC	64	1	32	1
cis-1,2-Dichloroethylene	VOC	389	6	195	3
cis-1,3-Dichloropropene	VOC	64	7	32	2
Dibromochloromethane	VOC	66	3	33	2
Dichlorodifluoromethane	VOC	10	1	5	—
Ethyl Cyanide	VOC	274	5	137	6
Ethyl Methacrylate	VOC	74	4	37	1
Ethylbenzene	VOC	298	2	149	3
Iodomethane	VOC	90	22	45	7
Isobutyl Alcohol	VOC	98	4	49	8
Methacrylonitrile	VOC	74	4	37	1
Methyl Methacrylate	VOC	82	2	41	2
Methylene Chloride	VOC	284	7	142	7
Styrene	VOC	64	1	32	1
Tetrachloroethene	VOC	184	1	92	3
Tetrahydrofuran	VOC	220	5	110	7
Toluene	VOC	598	3	299	3
trans-1,2-Dichloroethylene	VOC	377	19	189	3
trans-1,3-Dichloropropene	VOC	64	3	32	2
trans-1,4-Dichloro-2-butene	VOC	72	3	36	5
Trichloroethene	VOC	562	7	281	3
Trichloromonofluoromethane	VOC	74	3	37	1
Vinyl Acetate	VOC	80	1	40	4

Table 6-9. Laboratory Matrix Spike Results Outside of QC Criteria

Analyte Name	Analyte Class	Number MS/MSD	Number MS/MSD Out of Limits*	Number MSD	Number RPDs Out of Limit
Vinyl Chloride	VOC	220	1	110	3
	Total	**24,706**	**658**	**12,175**	**501**

* Laboratory spikes where the sample result is less than or equal to four times the spiking concentration are evaluated by comparing the percent recovery with the minimum and maximum control limits provided by the laboratory. In addition, where the sample result is less than or equal to four times the spiking concentration, the MS/MSD RPD must have an RPD of less than or equal to 20 percent.

MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference
SVOC = semivolatile organic compound
VOC = volatile organic compound

The MS/MSD results reported for the 200-PO-1 Groundwater OU generally have sample results from more than one project associated with them. Although MS/MSD criteria may have been exceeded for an analytical batch, samples included in this DQA may not have been affected or required qualification. Sample results associated with MS/MSDs that were outside of the laboratory-specified QC acceptance criteria are discussed below by year.

In 2008, there were 59 MS/MSD percent recoveries that exceeded the minimum and/or maximum QC limits established by the laboratory. Percent recovery exceedances ranged from -81 to 77 percent on the low end and 120.2 to 236 percent on the high end. In total, 356 sample results were associated with these MS/MSDs. The analytes that had the highest exceedances (over 200 percent) included 4-nitrophenol, heptachlor, and sodium. A total of 140 individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria. Table A-17 (Appendix A) lists the sample results that required qualification for the year 2008.

In 2009, there were 65 MS/MSD percent recoveries that exceeded the minimum and/or maximum QC limits established by the laboratory. Percent recovery exceedances ranged from 0 to 79 percent on the low end and 130.1 to 592 percent on the high end. In total, 59 sample results were associated with these MS/MSDs. The analytes that had the highest exceedances (over 200 percent) included acetone, iron, and heptachlor. A total of 12 individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria. Table A-18 (Appendix A) lists the sample results that required qualification for the year 2009.

In 2010, there were 119 MS/MSD percent recoveries that exceeded the minimum and/or maximum QC limits established by the laboratory. Percent recovery exceedances ranged from -108 to 79.7 percent on the low end and 115 to 2,380 percent on the high end. There were 128 sample results associated with these MS/MSDs. Analytes with exceedances over 300 percent include acrolein, barium, bromomethane, 1,2-dibromoethane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, and iodomethane. A total of 62 individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria. Table A-19 (Appendix A) lists the sample results that required qualification for the year 2010.

In 2011, there were 39 MS/MSD percent recoveries that exceeded the minimum and/or maximum QC limits established by the laboratory. Percent recovery exceedances ranged from 6.1 to 89 percent on the low end and 111 to 436 percent on the high end. In total, 92 sample results were associated with these MS/MSDs. No individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria.

In 2012, there were 24 MS/MSD percent recoveries that exceeded the minimum and/or maximum QC limits established by the laboratory. Percent recovery exceedances ranged from-289 to 78 percent on the low end and 121 to 189 percent on the high end. In total, 42 sample results were associated with these MS/MSDs. The analytes with exceedances over 150 percent were 2,4,5-T(2,4,5-trichlorophenoxyacetic acid), 2,4-DB(4-(2,4-dichlorophenoxy)butanoic acid), and calcium. A total of 42 individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria. Table A-20 (Appendix A) lists the sample results that required qualification for the year 2012.

In 2013, there were 70 MS/MSD percent recoveries that exceeded the minimum and/or maximum control limits established by the laboratory. The range of percent recovery exceedances went from-147 to 79.7 percent on the low end and 120 to 140 percent on the high end. In total, 112 sample results were associated with these MS/MSDs. A total of 66 individual results required qualification as a result of MS or MSD recoveries reported outside QC acceptance criteria. Table A-21 (Appendix A) lists the sample results that required qualification for the year 2013.

In summary, there were 789 sample results associated with MS/MSD exceedances. This represents less than 1 percent of the total results in the 200-PO-1 Groundwater OU data set. A total of 322 individual sample results required qualification as a result of MS/MSD recoveries reported outside QC acceptance criteria.

6.3.3 Surrogate Spikes

Finally, as part of VOC/SVOC analyses, a compound that is not likely to be contained in an environmental sample (a surrogate) is injected into each sample as a measure of overall method performance on that specific sample. The 200-PO-1 Groundwater OU data set contained 25,217 individual surrogate results. Of these results, 16 individual analytes were outside of the laboratory-specified acceptability criteria. In total, 18,673 surrogate results are associated with these 15 analytes. Of these results, 254 or 1.0 percent exceeded the QC limits established by the laboratory. The total laboratory surrogates reported with the 200-PO-1 Groundwater OU data set are listed by analyte class in Table 6-10. Table 6-11 shows the 16 analytes that reported surrogate results outside of QC acceptance criteria.

Table 6-10. Total Laboratory Surrogates by Analyte Class

Analyte Class	Results
General Chemistry	214
Semivolatile Organic Compounds	7,153
Volatile Organic Compounds	17,850
Total	**25,217**

1

Table 6-11. Laboratory Surrogates Exceeding QC Criteria

Analyte	Compound Class	Number of Surrogates	Number Surrogates Out of Limits	Percent Surrogates Out of Limits
1,2-Dichloroethane-d4	VOC	4,461	34	0.76
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	PCB	78	1	1.3
2,4,5,6-Tetrachloro-m-xylene	PCB	78	3	3.8
2,4,6-Tribromophenol	SVOC	1,324	23	1.7
2-Fluorobiphenyl	SVOC	560	17	3.0
2-Fluorophenol	SVOC	1,307	20	1.5
2-Methylnaphthalene-d10	SVOC	66	2	3.0
4-Fluorobromobenzene	VOC	3,767	48	1.3
Dibromofluoromethane	VOC	1,147	16	1.4
Fluoranthene-d10	VOC	66	3	4.5
Nitrobenzene-d5	SVOC	560	13	2.3
o-Terphenyl	TPH	187	3	1.6
Phenol-d5	SVOC	785	39	5.0
p-terphenyl-d14	SVOC	397	2	0.50
Terphenyl-d14	SVOC	126	8	6.3
Toluene-d8	VOC	3,764	22	0.58
	Total	**18,673**	**254**	

PCB = polychlorinated biphenyl
SVOC = semivolatile organic compound
TPH = total petroleum hydrocarbon
VOC = volatile organic compound

2

3

Surrogate recovery results reported for the 200-PO-1 Groundwater OU generally have sample results from more than one project associated with them. Although surrogate spike recovery criteria may have been exceeded for an analytical batch, samples included in this DQA may not have been affected or required sample qualification. Sample results associated with surrogate recoveries that were outside the laboratory-specified QC acceptance criteria are discussed below by year.

In 2008, there were nine surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 1.1 to 7 percent on the low end and 111 to 139 percent on the high end. In total, 172 sample results were associated with these surrogates. A total of 28 individual results required qualification as a result of surrogate recoveries reported outside QC acceptance criteria. Table A-23 (Appendix A) lists the sample results that required qualification for the year 2008.

In 2009, there were eight surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 0.88 to 47 percent on the low end and 112 to 148 percent on the high end. In total, 230 sample results were associated with these surrogates. A total of 34 individual results required qualification as a result of surrogate recoveries reported outside QC acceptance criteria. Table A-24 (Appendix A) lists the sample results that required qualification for the year 2009.

In 2010, there were 15 surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 0 to 40 percent and they were all on the low end. In total, 816 sample results were associated with these surrogates. A total of 135 individual results required qualification as a result of surrogate recoveries reported outside QC acceptance criteria. Table A-25 (Appendix A) lists the sample results that required qualification for the year 2010.

In 2011, there were 25 surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 0.77 to 34 percent on the low end and 99 to 139 percent on the high end. In total, 164 sample results were associated with these surrogates. No individual results required qualification as a result of surrogate recoveries reported outside QC acceptance criteria.

In 2012, there were 29 surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 2.3 to 59 percent on the low end and 113 to 157 percent on the high end. In total, 284 sample results were associated with these surrogates. A total of 41 individual results required qualification as a result of surrogate recoveries reported outside QC acceptance criteria. Table A-26 (Appendix A) lists the sample results that required qualification for the year 2012.

In 2013, there were five surrogate percent recoveries that were outside of the laboratory-specified QC acceptance criteria. Percent recovery exceedances ranged from 71 to 149 percent. In total, 2 sample results were associated with these surrogates. No sample results required qualification as a result of surrogate spikes reported outside QC acceptance criteria.

In summary, there were 1,668 sample results associated with surrogate spike exceedances. This represents 1.2 percent of the total results in the 200-PO-1 Groundwater OU data set. A total of 219 individual sample results required qualification as a result of surrogate spike recoveries reported outside QC acceptance criteria.

6.4 Sensitivity Analysis – Evaluation of Method Detection Limits

The groundwater data set consists of 102,727 individual analytical results. Of these, approximately 60,768 results (59 percent) were nondetected results. The range of method detection limits (MDLs) reported for each analyte was compared to their respective comparison values (see definitions provided in Section 5.1.2). The purpose of this evaluation is to determine if the MDL is adequate for confirming absence at levels less than or equal to the pertinent criteria or standards. Tables 6-12 through 6-14 provides a comparison of the minimum and maximum MDLs to the comparison values selected for the evaluation of results from monitoring wells located inland from the Columbia River. Tables 6-15 through 6-17 provides a comparison of the minimum and maximum MDLs to the comparison values selected for the evaluation of results from monitoring wells that have the potential to discharge to the Columbia River. Comparison values are listed in Table 5-4.

A summary of analytes that report all MDLs less than or equal to their respective comparison value are shown in Tables 6-12 and 6-15. A summary of analytes that report all minimum MDLs less than or equal to the respective comparison value but report a portion of maximum MDLs greater than the comparison value is shown in Tables 6-13 and 6-16. A summary of analytes that report all MDLs greater than the comparison value is shown in Tables 6-14 and 6-17.

6.4.1 Method Detection Limit Results for Inland Groundwater Samples

As shown in Table 6-12, all MDLs for 195 analytes are less than or equal to their respective comparison value. Included in this group of analytes are 26 of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The MDLs for all analytes listed in Table 6-12 are considered usable for all RI/FS purposes.

As shown in Table 6-13, 30 analytes are reported with a portion of the MDLs greater than their respective comparison value. Included in this group of analytes are 14 of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). Analytes identified as COPCs and analytes with detections are discussed below.

1,1,2,2-Tetrachloroethane, 1,2-dichloroethane, benzene, dieldrin, heptachlor, heptachlor epoxide, and vinyl chloride were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). These seven analytes were not detected in any of the groundwater samples, although a portion of the MDLs are greater than their respective comparison value, all MDLs are less than the practical quantitation limit listed in the RI/FS Work Plan. The results of these analyses are considered usable for concluding that these COPCs are absent at concentrations less than their respective comparison values.

Carbon tetrachloride and trichloroethene were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The laboratory cannot attain the comparison value for carbon tetrachloride (0.63 µg/L) or trichloroethene (0.95 µg/L); therefore, nondetected concentrations are reported as less than or equal to 1 µg/L. The MDLs reported for carbon tetrachloride and trichloroethene are less than the practical quantitation limit of 2 µg/L listed in Appendix A of the RI/FS Work Plan. Both analytes were detected in groundwater samples. MDLs for these analytes are considered usable because analytical laboratories generally cannot attain concentrations less than or equal to the comparison values.

Bromodichloromethane and dibromochloromethane were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The laboratory cannot attain the comparison value for bromodichloromethane (0.71 µg/L) and dibromochloromethane (0.52 µg/L); therefore, nondetected concentrations are reported as less than or equal to 1 µg/L. The MDLs reported for carbon tetrachloride and trichloroethene are also less than the practical quantitation limit of 5 µg/L listed in Appendix A of the RI/FS Work Plan. Both analytes were detected in groundwater samples. MDLs for these analytes are

considered usable because analytical laboratories generally cannot attain concentrations less than or equal to the comparison values.

Iodine-129 was identified as a COPC in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). A small percentage of MDLs for iodine-129 (12 of 207 MDLs) are greater than the comparison value of 1 pCi/L. Detected concentrations of iodine-129 are reported at the same locations as elevated MDLs, confirming the presence of iodine-129 at these wells. As a result, the MDLs for these samples are considered usable for decision-making purposes.

Four metals (antimony, arsenic, beryllium, and cobalt) report a portion of their MDLs at concentrations above the comparison values. Groundwater samples were analyzed using the following analytical methods:

- Inductively coupled plasma (ICP)/atomic emission spectrometry (AES) using EPA Method 6010 (SW-846, *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods, Third Edition; Final Update IV-B*)
- ICP/mass spectrometry (MS) using EPA Method 200.8

Results for each of these metals are presented separately based on the analytical method used (e.g., Method 6010 results or Method 200.8 results) as shown in Table 6-13. MDLs for all four metals analyzed by Method 200.8 are reported at concentrations less than their respective comparison value; these results are considered usable for all RI/FS decision-making purposes.

Antimony and beryllium have low detection frequencies (less than 5 percent and less than 0.2 percent, respectively). Antimony and beryllium also report a high percentage of MDLs analyzed by Method 6010 that are greater than their respective comparison values. The MDL results reported by Method 6010 are not considered usable for RI/FS decision-making purposes because they cannot be used to confirm their absence at concentrations less than the comparison value. The following summarizes the number of MDL results for antimony and beryllium analyzed by Method 6010 that are not considered usable:

- **Total antimony:** All 1,054 MDLs (100 percent) are greater than comparison value of 6 µg/L.
- **Dissolved antimony:** 916 of 952 MDLs (96 percent) are greater than comparison value of 6 µg/L.
- **Total beryllium:** 1,170 of 1,171 MDLs (greater than 99 percent) are greater than the comparison value of 4 µg/L.
- **Dissolved beryllium:** 1,050 of 1,051 MDLs (greater than 99 percent) are greater than the comparison value of 4 µg/L.

Arsenic has a high detection frequency (approximately 97 percent). However, all groundwater samples analyzed by Method 6010 are reported as nondetected concentrations and report MDLs greater than the comparison value. The MDL results reported by Method 6010 are not considered usable for RI/FS decision-making purposes because they cannot be used to confirm their absence at concentrations less than the comparison value. The following summarizes the number of MDL results for arsenic analyzed by Method 6010 that are not considered usable:

- **Total arsenic:** All 8 MDLs (100 percent) are greater than the comparison value of 7.9 µg/L.
- **Dissolved arsenic:** All 13 MDLs (100 percent) are greater than the comparison value of 7.9 µg/L.

Table 6-12. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Anions/Cations															
Chloride	No	1/2/2008	12/23/2013	µg/L	1,362	1,362	100	--	--	1,280	183,000	250,000	40 CFR 141, federal MCL	No	No
Cyanide	No	5/6/2008	10/1/2013	µg/L	28	0	0	2.8	4	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Fluoride	No	1/2/2008	12/23/2013	µg/L	1,362	1,314	96.48	46	360	39.4	1,200	960	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nitrate	No	1/2/2008	12/23/2013	µg/L	1,359	1,349	99.26	38.1	274	145	172,000	45,000	40 CFR 141, federal MCL	No	No
Nitrite	No	1/2/2008	12/23/2013	µg/L	1,359	279	20.53	9.85	2,500	31.5	2,200	3,300	40 CFR 141, federal MCL	No	No
Dioxins/Furans															
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.60E-06	2.60E-06	0.00011	0.00011	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,4,6,7,8-Heptachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	9.50E-07	1.50E-06	6.00E-06	6.00E-06	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,4,7,8,9-Heptachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.50E-06	2.40E-06	3.60E-06	3.60E-06	6.73E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,4,7,8-Hexachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	6.80E-07	1.10E-06	5.00E-06	5.00E-06	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.30E-06	1.80E-06	1.70E-06	1.70E-06	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,6,7,8-Hexachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	6.10E-07	1.10E-06	2.20E-06	2.20E-06	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.50E-06	2.00E-06	1.30E-05	1.30E-05	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,7,8,9-Hexachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	8.70E-07	1.60E-06	7.60E-07	7.60E-07	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.30E-06	1.80E-06	7.80E-06	7.80E-06	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,3,7,8-Pentachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.40E-06	1.90E-06	1.00E-06	1.00E-06	2.24E-05	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,3,4,6,7,8-Hexachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	6.90E-07	1.20E-06	7.50E-07	7.50E-07	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,3,4,7,8-Pentachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.20E-06	1.70E-06	9.50E-07	9.50E-07	2.24E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,3,7,8-Tetrachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	0	0	1.50E-07	4.00E-06	--	--	6.73E-06	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Octachlorodibenzofuran	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.70E-06	3.00E-06	3.60E-05	3.60E-05	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Octachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	1	25	1.40E-06	2.40E-06	7.80E-05	7.80E-05	2.24E-03	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Herbicides															
2,4,5-T(2,4,5-Trichlorophenoxyacetic acid)	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.081	0.16	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4,5-TP(2-(2,4,5-Trichlorophenoxy)propionic acid)Silvex	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.069	0.14	--	--	128	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-D(2,4-Dichlorophenoxyacetic acid)	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.77	2	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-DB(4-(2,4-Dichlorophenoxy)butanoic acid)	No	12/12/2012	12/12/2012	µg/L	1	0	0	2.5	2.5	--	--	128	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dalapon	No	12/12/2012	12/12/2012	µg/L	1	0	0	3.8	3.8	--	--	240	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dicamba	No	12/12/2012	12/12/2012	µg/L	1	0	0	0.28	0.28	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dinoseb(2-secButyl-4,6-dinitrophenol)	No	1/25/2008	12/17/2013	µg/L	185	0	0	0.27	2.4	--	--	7.0	40 CFR 141, federal MCL	No	No

Table 6-12. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Metals															
Aluminum	No	4/9/2010	12/20/2010	µg/L	82	20	24.39	5	10	9.65	539	16,000	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Aluminum	Yes	4/9/2010	12/20/2010	µg/L	82	2	2.44	5	10	5.52	29.9	16,000	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Barium	No	1/2/2008	12/23/2013	µg/L	1,265	1,265	100	--	--	11.9	259	2,000	40 CFR 141, federal MCL	No	No
Barium	Yes	1/2/2008	12/23/2013	µg/L	1,140	1,139	99.91	4	4	5.7	158	2,000	40 CFR 141, federal MCL	No	No
Boron	No	4/9/2010	12/20/2010	µg/L	81	23	28.4	19	41	19	107	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Boron	Yes	4/9/2010	12/20/2010	µg/L	82	25	30.49	19	41	19	144	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Cadmium	No	1/2/2008	12/23/2013	µg/L	1,265	7	0.55	0.1	4.1	4.1	18	5.0	40 CFR 141, federal MCL	No	No
Cadmium	Yes	1/2/2008	12/23/2013	µg/L	1,140	5	0.44	0.1	4.1	0.68	6.8	5.0	40 CFR 141, federal MCL	No	No
Chromium	No	1/2/2008	12/23/2013	µg/L	1,265	572	45.22	1	14	1.07	190	100	40 CFR 141, federal MCL	No	No
Chromium	Yes	1/2/2008	12/23/2013	µg/L	1,140	310	27.19	1	14	1.1	71.5	100	40 CFR 141, federal MCL	No	No
Copper	No	1/2/2008	12/23/2013	µg/L	1,265	94	7.43	0.1	6	0.271	37.8	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Copper	Yes	1/2/2008	12/23/2013	µg/L	1,140	51	4.47	0.1	6	0.348	20.4	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexavalent chromium	No	7/16/2008	12/17/2010	µg/L	55	8	14.55	2	2	2.2	191	48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexavalent chromium	Yes	4/9/2010	12/17/2010	µg/L	53	9	16.98	2	2	2.7	5.9	48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Iron	No	1/2/2008	12/23/2013	µg/L	1,261	912	72.32	9	40	9.7	37,100	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Iron	Yes	1/2/2008	12/23/2013	µg/L	1,135	472	41.59	9	40	9.5	1,760	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Lead	No	1/2/2008	12/23/2013	µg/L	328	102	31.1	0.1	0.49	0.0775	34.5	15	40 CFR 141, federal MCL	No	No
Lead	Yes	1/2/2008	12/23/2013	µg/L	321	24	7.48	0.05	0.49	0.056	4.71	15	40 CFR 141, federal MCL	No	No
Lithium	No	4/9/2010	12/20/2010	µg/L	81	60	74.07	4	4	4	31	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Lithium	Yes	4/9/2010	12/20/2010	µg/L	82	59	71.95	4	4	4	31	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Manganese	No	1/2/2008	12/23/2013	µg/L	1,265	279	22.06	0.96	6	1.1	930	384	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Manganese	Yes	1/2/2008	12/23/2013	µg/L	1,140	201	17.63	0.96	6	1	173	384	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Mercury	No	5/6/2008	12/12/2012	µg/L	61	0	0	0.05	0.1	0	0	2.0	40 CFR 141, federal MCL	No	No
Mercury	Yes	5/6/2008	12/12/2012	µg/L	63	0	0	0.05	0.1	0	0	2.0	40 CFR 141, federal MCL	No	No
Molybdenum	No	4/9/2010	12/20/2010	µg/L	82	82	100	--	--	0.628	11.4	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Molybdenum	Yes	4/9/2010	12/20/2010	µg/L	82	82	100	--	--	0.729	12.2	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nickel	No	1/2/2008	12/23/2013	µg/L	1,265	404	31.94	4	66.5	4	233	100	40 CFR 141, federal MCL	No	No
Nickel	Yes	1/2/2008	12/23/2013	µg/L	1,140	249	21.84	4	66.5	4	220	100	40 CFR 141, federal MCL	No	No
Selenium	No	4/15/2008	12/12/2012	µg/L	84	69	82.14	0.48	6	0.63	6.77	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Selenium	Yes	4/15/2008	12/12/2012	µg/L	84	73	86.9	0.48	6	0.652	6.02	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-12. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Silver	No	1/2/2008	12/23/2013	µg/L	1,249	42	3.36	0.1	7	4	38	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Silver	Yes	1/2/2008	12/23/2013	µg/L	1,119	36	3.22	0.1	7	4.5	74	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Strontium	No	1/2/2008	12/23/2013	µg/L	1,253	1,252	99.92	4	4	21.9	902	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Strontium	Yes	1/2/2008	12/23/2013	µg/L	1,133	1,131	99.82	4	9	14	877	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Thallium	No	4/15/2008	12/17/2013	µg/L	113	0	0	0.05	0.1	--	--	0.5	40 CFR 141, federal MCLG	No	No
Thallium	Yes	4/15/2008	12/12/2012	µg/L	111	0	0	0.05	0.1	--	--	0.5	40 CFR 141, federal MCLG	No	No
Tin	No	4/9/2010	12/20/2010	µg/L	82	5	6.1	0.05	0.1	0.12	4.46	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tin	Yes	4/9/2010	12/20/2010	µg/L	82	3	3.66	0.05	0.1	0.19	5.47	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Uranium	No	1/2/2008	12/17/2013	µg/L	310	306	98.71	0.05	0.1	0.080	151	30	40 CFR 141, federal MCL	No	No
Uranium	Yes	4/11/2011	4/11/2011	µg/L	1	1	100	0	0	2.74	2.74	30	40 CFR 141, federal MCL	No	No
Vanadium	No	1/2/2008	12/23/2013	µg/L	1,264	1,001	79.19	4.1	17	5.3	45	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Vanadium	Yes	1/2/2008	12/23/2013	µg/L	1,140	868	76.14	5	17	5.3	45.7	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Zinc	No	1/2/2008	12/23/2013	µg/L	1,265	344	27.19	4	9	4	10,200	4,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Zinc	Yes	1/2/2008	12/23/2013	µg/L	1,140	219	19.21	4	9	4	10,300	4,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Total Petroleum Hydrocarbons															
Total petroleum hydrocarbons - diesel range	No	3/16/2009	12/17/2010	µg/L	55	1	1.82	70	70	100	100	500	WAC 173-340-900, Table 720-1	No	No
Total petroleum hydrocarbons - gasoline range	No	3/16/2009	3/17/2009	µg/L	3	0	0	50	50	--	--	1,000	WAC 173-340-900, Table 720-1	No	No
Organochlorine Pesticides															
4,4'-DDD (Dichlorodiphenyldichloroethane)	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0031	0.0095	--	--	0.36	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4,4'-DDE (Dichlorodiphenyldichloroethylene)	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0027	0.013	--	--	0.26	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4,4'-DDT (Dichlorodiphenyltrichloroethane)	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0056	0.022	--	--	0.26	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Alpha-BHC	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0025	0.0095	--	--	0.014	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Alpha Chlordane	No	12/17/2013	12/17/2013	µg/L	1	0	0	0.014	0.014	--	--	0.25	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0065	0.015	--	--	0.049	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chlordane	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.032	0.18	--	--	0.25	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Endosulfan I	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0025	0.018	--	--	96.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Endosulfan II	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0032	0.01	--	--	96.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Endrin	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0028	0.017	--	--	2.0	40 CFR 141, federal MCL	No	No
Gamma-BHC (Lindane)	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0025	0.0095	--	--	0.080	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methoxychlor	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.005	0.012	--	--	40.0	40 CFR 141, federal MCL	No	No
Trans chlordane	No	12/17/2013	12/17/2013	µg/L	1	0	0	0.0095	0.0095	--	--	0.25	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-12. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Polychlorinated Biphenyls															
Aroclor-1016	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.21	--	--	1.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Radionuclides															
Americium-241	No	4/9/2010	12/17/2010	pCi/L	52	1	1.92	-0.16	2.1	0.11	0.11	15	40 CFR 141, federal MCL	No	No
Carbon-14	No	4/9/2010	12/17/2010	pCi/L	52	16	30.77	-3.15	7.8	8.18	15.9	2,000	40 CFR 141, federal MCL	No	No
Cesium-137	No	1/2/2008	10/22/2013	pCi/L	137	0	0	-5.3	8.8	--	--	200	40 CFR 141, federal MCL	No	No
Cobalt-60	No	1/2/2008	10/22/2013	pCi/L	137	0	0	-8.5	6.4	--	--	100	40 CFR 141, federal MCL	No	No
Europium-152	No	1/2/2008	10/22/2013	pCi/L	137	0	0	-19	16	--	--	200	40 CFR 141, federal MCL	No	No
Europium-154	No	1/2/2008	10/22/2013	pCi/L	137	0	0	-26	29	--	--	60	40 CFR 141, federal MCL	No	No
Europium-155	No	1/2/2008	10/22/2013	pCi/L	137	0	0	-34	9.2	--	--	600	40 CFR 141, federal MCL	No	No
Gross alpha	No	1/2/2008	12/23/2013	pCi/L	755	405	53.64	-13	11	0.72	89	15	40 CFR 141, federal MCL	No	No
Neptunium-237	No	4/15/2008	4/29/2009	pCi/L	29	0	0	-0.086	0.061	--	--	15	40 CFR 141, federal MCL	No	No
Protactinium-231	No	4/15/2008	4/29/2009	pCi/L	29	4	13.79	-0.044	0.29	0.15	0.308	15	40 CFR 141, federal MCL	No	No
Selenium-79	No	7/10/2008	4/29/2009	pCi/L	28	2	7.14	-7.6	5.26	6	32.8	7.3	EPA Method 2013	No	No
Strontium-90	No	1/2/2008	12/23/2013	pCi/L	371	42	11.32	-2,000	2	0.64	30	8.0	40 CFR 141, federal MCL	No	No
Technetium-99	No	1/2/2008	12/23/2013	pCi/L	550	430	78.18	-16	7.8	6.7	8,000	900	40 CFR 141, federal MCL	No	No
Tritium	No	1/2/2008	12/23/2013	pCi/L	751	662	88.15	-370	290	190	1,100,000	20,000	40 CFR 141, federal MCL	No	No
Semivolatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	2.5	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2-Dichlorobenzene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	600	40 CFR 141, federal MCL	No	No
2,3,4,6-Tetrachlorophenol	No	1/25/2008	12/17/2013	µg/L	185	0	0	0.9	2.1	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4,5-Trichlorophenol	No	1/25/2008	12/17/2013	µg/L	186	0	0	0.9	2.2	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4,6-Trichlorophenol	No	1/25/2008	12/17/2013	µg/L	186	0	0	0.9	2.2	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dichlorophenol	No	1/25/2008	12/17/2013	µg/L	273	0	0	0.48	2.1	--	--	24	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dimethylphenol	No	1/25/2008	12/17/2013	µg/L	186	0	0	1	2.1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dinitrophenol	No	1/25/2008	12/17/2013	µg/L	214	0	0	0.9	10	--	--	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,6-Dinitrotoluene	No	3/16/2009	12/17/2013	µg/L	40	1	2.5	0.9	2.2	17	17	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Chloronaphthalene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Chlorophenol	No	1/25/2008	12/17/2013	µg/L	243	0	0	0.48	2.2	--	--	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Hexanone	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.08	5	--	--	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Methylnaphthalene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-12. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
2-Methylphenol (cresol, o-)	No	1/25/2008	12/17/2013	µg/L	274	0	0	0.48	2.2	--	--	400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Nitroaniline	No	3/16/2009	12/17/2013	µg/L	41	0	0	0.9	2	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
3-Nitroaniline	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	4.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Chloro-3-methylphenol	No	1/25/2008	12/17/2013	µg/L	243	0	0	0.48	2.4	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Methylphenol (cresol, p-)	No	3/16/2009	12/20/2010	µg/L	36	0	0	10	20	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Nitroaniline	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1.6	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
5-Nitro-o-toluidine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	9.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acenaphthene	No	2/21/2008	12/17/2013	µg/L	99	0	0	0.5	2.5	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acetophenone	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.2	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Aniline	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	2	--	--	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Anthracene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Benzyl alcohol	No	3/16/2009	12/17/2013	µg/L	39	1	2.56	0.9	1	1.1	1.1	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bis(2-Chloroethoxy)methane	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	48.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bis(2-ethylhexyl) phthalate	No	2/21/2008	12/17/2013	µg/L	129	14	10.85	0.7	1	1	14	6.0	40 CFR 141, federal MCL	No	No
Butylbenzylphthalate	No	3/16/2009	12/17/2013	µg/L	40	1	2.5	0.9	1	1.3	1.3	46.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Carbazole	No	10/14/2009	12/17/2013	µg/L	37	0	0	0.9	1	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chrysene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	1.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dibenzofuran	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Diethylphthalate	No	3/16/2009	12/17/2013	µg/L	40	1	2.5	0.9	1	1.7	1.7	12,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dimethoate	No	4/15/2008	12/17/2013	µg/L	68	0	0	0.9	1.1	--	--	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Di-n-butylphthalate	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Fluoranthene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Fluorene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	320	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexachlorocyclopentadiene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexachloroethane	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	1.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Isophorone	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	46	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
m-Dinitrobenzene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	1.6	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methyl parathion	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Naphthalene	No	2/21/2008	12/17/2013	µg/L	129	0	0	0.5	2	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nitrobenzene	No	4/15/2008	12/17/2013	µg/L	69	0	0	0.9	1	--	--	16.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
n-Nitrosodiphenylamine	No	3/16/2009	12/20/2010	µg/L	37	0	0	1	1	--	--	18.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

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Parathion	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	96.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pentachlorobenzene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	13.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phenacetin	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	40.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phenol	No	1/25/2008	12/17/2013	µg/L	286	0	0	0.48	4	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phorate	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
p-Phenylenediamine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	3,040	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pronamide	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	1,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pyrene	No	2/21/2008	12/17/2013	µg/L	99	0	0	0.48	1	--	--	240	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pyridine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	5.7	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
sym-Trinitrobenzene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.4	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tetraethyl dithiopyrophosphate (Sulfotepp)	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Total Cresols	No	4/12/2012	5/20/2013	µg/L	4	0	0	0.9	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tributyl Phosphate	No	2/21/2008	12/17/2013	µg/L	128	4	3.13	0.48	1.5	1.8	6.7	9.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tris-2-chloroethyl phosphate	No	2/21/2008	5/20/2013	µg/L	89	0	0	0.5	1.2	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.09	1	--	--	1.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,1,1-Trichloroethane	No	2/13/2008	12/17/2013	µg/L	524	30	5.73	0.067	1	0.15	1.5	200	40 CFR 141, federal MCL	No	No
1,1-Dichloroethane	No	2/13/2008	12/17/2013	µg/L	524	12	2.29	0.046	1	0.09	0.25	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,1-Dichloroethene	No	2/13/2008	12/17/2013	µg/L	524	3	0.57	0.045	1	0.14	0.19	7.0	40 CFR 141, federal MCL	No	No
1,2-Dichloroethene (Total)	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.13	1	--	--	72.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2-Dichloropropane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.054	1	--	--	1.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,4-Dichlorobenzene	No	2/13/2008	12/17/2013	µg/L	538	0	0	0.1	1	--	--	8.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1-Butanol	No	2/13/2008	12/17/2013	µg/L	523	0	0	8.1	100	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Butanone	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.52	1.8	--	--	4,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Methyl-2-pentanone	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.12	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acetone	No	2/13/2008	12/17/2013	µg/L	518	21	4.05	0.34	5	0.4	37	7,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Allyl Chloride	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.091	1	--	--	2.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bromoform	No	4/15/2008	12/17/2013	µg/L	123	6	4.88	0.094	1	1.6	2.9	5.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bromomethane	No	4/15/2008	12/17/2013	µg/L	123	24	19.51	0.084	2	0.33	4.5	11.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Carbon Disulfide	No	2/13/2008	12/17/2013	µg/L	524	6	1.15	0.029	1	0.053	0.21	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chlorobenzene	No	2/13/2008	12/17/2013	µg/L	502	0	0	0.06	1	--	--	100	40 CFR 141, federal MCL	No	No

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Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Chloroform	No	2/13/2008	12/17/2013	µg/L	524	42	8.02	0.067	1	0.086	7.1	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chloroprene	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.083	1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
cis-1,2-Dichloroethylene	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.048	1	--	--	16.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dibromomethane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.095	1	--	--	80.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dichlorodifluoromethane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.058	2	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Ethyl Methacrylate	No	4/15/2008	12/17/2013	µg/L	123	1	0.81	0.11	1	0.82	0.82	720	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Ethylbenzene	No	2/13/2008	12/17/2013	µg/L	523	1	0.19	0.061	1	2.1	2.1	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexane	No	4/15/2008	1/15/2009	µg/L	28	0	0	0.16	0.16	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Isobutyl Alcohol	No	4/15/2008	12/17/2013	µg/L	123	0	0	5	200	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methyl Methacrylate	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.26	2	--	--	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methylene Chloride	No	2/13/2008	12/17/2013	µg/L	523	14	2.68	0.091	1	0.39	88	5.0	40 CFR 141, federal MCL	No	No
Styrene	No	4/15/2008	12/17/2013	µg/L	122	0	0	0.036	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tetrachloroethene	No	2/13/2008	12/17/2013	µg/L	523	59	11.28	0.065	1	0.28	4.5	5.0	40 CFR 141, federal MCL	No	No
Tetrahydrofuran	No	2/13/2008	12/17/2013	µg/L	524	0	0	1.1	7.5	--	--	14,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Toluene	No	2/13/2008	12/17/2013	µg/L	523	3	0.57	0.029	1	0.029	1.4	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
trans-1,2-Dichloroethylene	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.081	1	--	--	100	40 CFR 141, federal MCL	No	No
Trichloromonofluoromethane	No	4/15/2008	12/17/2013	µg/L	123	4	3.25	0.041	1	0.29	0.58	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Vinyl Acetate	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.17	2	--	--	8,000	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Xylenes (Total)	No	2/13/2008	12/17/2013	µg/L	523	2	0.38	0.11	1.6	1.4	4.1	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A).

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Table 6-13. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (Some MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Dioxins/Furans															
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	0	0	1.40E-07	2.30E-06	--	--	6.73E-07	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
2,3,7,8-Tetrachlorodibenzo-p-dioxin	No	3/16/2009	12/12/2012	µg/L	4	0	0	1.60E-07	6.10E-06	--	--	6.73E-07	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Metals															
Antimony (all results)	No	1/2/2008	12/23/2013	µg/L	1,265	61	4.82	0.1	60	0.10	104	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (all results)	Yes	1/2/2008	12/23/2013	µg/L	1,140	42	3.68	0.1	60	0.11	82.7	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (Method 6010 results)	No	1/2/2008	12/23/2013	µg/L	1,092	38	3.48	4	60	4.1	104	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (Method 6010 results)	Yes	1/2/2008	12/23/2013	µg/L	967	15	1.55	4	60	33.5	82.7	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (Method 200.8 results)	No	4/9/2010	10/14/2013	µg/L	173	23	13.29	0.1	0.6	0.10	0.24	6.0	40 CFR 141, federal MCL	No	No
Antimony (Method 200.8 results)	Yes	4/9/2010	10/14/2013	µg/L	173	27	15.61	0.1	0.6	0.11	0.31	6.0	40 CFR 141, federal MCL	No	No
Arsenic (all results)	No	1/3/2008	12/23/2013	µg/L	633	617	97.47	0.4	30	0.79	14.9	7.9	DOE/RL-96-61, Table ES-1	No	Yes
Arsenic (all results)	Yes	1/3/2008	12/23/2013	µg/L	537	517	96.28	0.4	30	0.63	13.9	7.9	DOE/RL-96-61, Table ES-1	No	Yes
Arsenic (Method 6010 results)	No	10/22/2013	12/23/2013	µg/L	8	0	0	25	30	--	--	7.9	DOE/RL-96-61, Table ES-1	Yes	Yes
Arsenic (Method 6010 results)	Yes	11/14/2013	12/23/2013	µg/L	13	0	0	25	30	--	--	7.9	DOE/RL-96-61, Table ES-1	Yes	Yes
Arsenic (Method 200.8 results)	No	1/3/2008	12/23/2013	µg/L	606	600	99.0	0.4	0.8	0.79	14.9	7.9	DOE/RL-96-61, Table ES-1	No	No
Arsenic (Method 200.8 results)	Yes	1/3/2008	10/14/2013	µg/L	507	502	99.0	0.4	0.8	0.63	13.9	7.9	DOE/RL-96-61, Table ES-1	No	No
Beryllium (all results)	No	1/2/2008	12/23/2013	µg/L	1,253	1	0.08	0.05	4.1	9.4	9.4	4.0	40 CFR 141, federal MCL	No	Yes
Beryllium (all results)	Yes	1/2/2008	12/23/2013	µg/L	1,133	2	0.18	0.05	4.1	0.13	0.76	4.0	40 CFR 141, federal MCL	No	Yes
Beryllium (Method 6010 results)	No	1/2/2008	12/23/2013	µg/L	1,171	1	0.09	0.5	4.1	9.4	9.4	4.0	40 CFR 141, federal MCL	No	Yes
Beryllium (Method 6010 results)	Yes	1/2/2008	12/23/2013	µg/L	1,051	1	0.01	0.5	4.1	0.76	0.76	4.0	40 CFR 141, federal MCL	No	Yes
Beryllium (Method 200.8 results)	No	4/9/2010	12/20/2010	µg/L	82	0	0	0.05	0.1	--	--	4.0	40 CFR 141, federal MCL	No	No
Beryllium (Method 200.8 results)	Yes	4/9/2010	12/20/2010	µg/L	82	1	1.22	0.05	0.1	--	--	4.0	40 CFR 141, federal MCL	No	No
Cobalt (all results)	No	1/2/2008	12/23/2013	µg/L	1,265	23	1.82	0.05	5	0.121	19.1	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (all results)	Yes	1/2/2008	12/23/2013	µg/L	1,140	87	7.63	0.05	5	0.076	13.3	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 6010 results)	No	1/2/2008	12/23/2013	µg/L	1,183	8	0.68	4	5	4	19.1	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 6010 results)	Yes	1/2/2008	12/23/2013	µg/L	1,058	52	4.91	4	5	4	13.3	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 200.8 results)	No	4/9/2010	12/20/2010	µg/L	82	15	18.29	0.05	0.1	0.12	1	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Cobalt (Method 200.8 results)	Yes	4/9/2010	12/20/2010	µg/L	82	35	42.68	0.05	0.1	0.076	2.2	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-13. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (Some MDLs Less Than or Equal to Comparison Value)

Target Analyte	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Organochlorine Pesticides															
Dieldrin	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0023	0.0095	--	--	0.0055	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Heptachlor	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0025	0.034	--	--	0.019	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Heptachlor epoxide	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.0032	0.016	--	--	0.0048	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Radionuclides															
Iodine-129	No	1/3/2008	12/23/2013	pCi/L	556	349	62.77	-1.61	5.58	0.167	11.4	1.0	40 CFR 141, federal MCL	No	Yes
Semivolatile Organic Compounds															
1,2,4-Trichlorobenzene	No	2/21/2008	12/17/2013	µg/L	99	0	0	0.7	2.1	--	--	1.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
4,6-Dinitro-2-methylphenol	No	1/25/2008	12/17/2013	µg/L	186	0	0	0.9	2.2	--	--	1.3	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Aramite	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	20	--	--	3.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Diallate	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	2	--	--	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Hexachlorophene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	10	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Volatile Organic Compounds															
1,1,2,2-Tetrachloroethane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.098	1	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
1,1,2-Trichloroethane	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.063	1	--	--	0.77	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
1,2-Dichloroethane	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.05	1	--	--	0.48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Acrolein	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.52	5	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Benzene	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.032	1	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Bromodichloromethane	No	4/15/2008	12/17/2013	µg/L	123	10	8.13	0.082	1	0.17	2.1	0.71	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Carbon tetrachloride	No	2/13/2008	12/17/2013	µg/L	524	15	2.86	0.042	1	0.098	7.4	0.63	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
cis-1,3-Dichloropropene	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.073	1	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Dibromochloromethane	No	4/15/2008	12/17/2013	µg/L	123	7	5.69	0.057	1	1.6	3.3	0.52	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Methacrylonitrile	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.05	2	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
trans-1,3-Dichloropropene	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.08	1	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Trichloroethene	No	2/13/2008	12/17/2013	µg/L	523	36	6.88	0.091	1	0.25	4.2	1.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Vinyl chloride	No	2/13/2008	12/17/2013	µg/L	524	0	0	0.032	1	--	--	0.061	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A).

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Table 6-14. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Herbicides															
2-(2-methyl-4-chlorophenoxy) propionic acid	No	12/12/2012	12/12/2012	µg/L	1	0	0	130	130	--	--	16.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2-Methyl-4 chlorophenoxyacetic acid	No	12/12/2012	12/12/2012	µg/L	1	0	0	130	130	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Organochlorine Pesticides															
Aldrin	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.004	0.0095	--	--	0.0026	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Toxaphene	No	4/15/2008	12/12/2012	µg/L	33	0	0	0.19	0.59	--	--	0.080	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Polychlorinated Biphenyls															
Aroclor-1221	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.2	0.21	--	--	0.022	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Aroclor-1232	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.21	--	--	0.022	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Aroclor-1242	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.21	--	--	0.044	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Aroclor-1248	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.21	--	--	0.044	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Aroclor-1254	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.14	--	--	0.044	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Aroclor-1260	No	3/16/2009	12/12/2012	µg/L	4	0	0	0.09	0.14	--	--	0.044	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Semivolatile Organic Compounds															
1,2,3-Trichloropropane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.15	1	--	--	0.0015	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2,4-Dinitrotoluene	No	2/21/2008	12/17/2013	µg/L	99	0	0	0.48	1	--	--	0.28	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2-Acetylaminofluorene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.023	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2-Naphthylamine	No	3/16/2009	12/17/2013	µg/L	39	0	0	1	2	--	--	0.049	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3,3'-Dichlorobenzidine	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1.3	--	--	0.19	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3,3'-Dimethylbenzidine	No	3/16/2009	12/17/2013	µg/L	39	0	0	2.6	4	--	--	0.0080	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3-Methylcholanthrene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.0040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
4-Aminobiphenyl	No	3/16/2009	12/17/2013	µg/L	39	0	0	1	2	--	--	0.0042	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
4-Chloroaniline	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1.3	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
7,12-Dimethylbenz[a]anthracene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.00035	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(a)anthracene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(a)pyrene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.012	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(b)fluoranthene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(k)fluoranthene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Bis(2-chloro-1-methylethyl)ether	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1.1	--	--	0.63	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Bis(2-chloroethyl) ether	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Chlorobenzilate	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes

Table 6-14. Comparison of MDLs from 200-PO-1 Groundwater OU Non-River Exposure Areas to Human Health Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Dibenz[a,h]anthracene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Disulfoton	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.64	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Hexachlorobenzene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.055	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Hexachlorobutadiene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.56	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Indeno(1,2,3-cd)pyrene	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Kepone	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	20	--	--	0.0088	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Methyl Methanesulfonate	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	2	--	--	0.88	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Nitrosopyrrolidine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.021	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodiethylamine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.2	--	--	0.00029	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodimethylamine	No	3/16/2009	12/17/2013	µg/L	40	0	0	0.9	2	--	--	0.00086	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodi-n-butylamine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.2	--	--	0.0081	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodi-n-dipropylamine	No	2/21/2008	12/17/2013	µg/L	99	1	1.01	0.5	1	2.9	2.9	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosomethylethylamine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.1	--	--	0.0040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosomorpholine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1.2	--	--	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosopiperidine	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.0093	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Azobenzene	No	6/10/2010	12/20/2010	µg/L	33	0	0	1	1	--	--	0.40	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
p-Dimethylaminoazobenzene	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	1	--	--	0.019	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachloroethane	No	3/16/2009	12/17/2013	µg/L	39	0	0	0.9	2.4	--	--	0.49	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachloronitrobenzene (PCNB)	No	3/16/2009	12/17/2013	µg/L	39	0	0	1	2	--	--	0.34	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachlorophenol	No	1/25/2008	12/17/2013	µg/L	286	0	0	0.5	2.4	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Miscellaneous Organics															
Oil and Grease	No	3/16/2009	3/17/2009	µg/L	3	0	0	2,100	2,100	--	--	500	WAC 173-340-900 Tables, Table 720-1	Yes	Yes
Volatile Organic Compounds															
1,2-Dibromo-3-chloropropane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.2	1	--	--	0.055	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
1,2-Dibromoethane	No	4/15/2008	12/17/2013	µg/L	123	0	0	0.098	1	--	--	0.022	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
1,4-Dioxane	No	2/25/2008	12/17/2013	µg/L	333	0	0	0.67	12	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Acrylonitrile	No	3/16/2009	12/17/2013	µg/L	8	0	0	1	5	--	--	0.081	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A).

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Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Anions/Cations															
Chloride	No	2/15/2008	1/6/2014	µg/L	59	58	98.31	86	86	1,080	19,100	250,000	40 CFR 141, federal MCL	No	No
Cyanide	No	2/15/2008	1/6/2014	µg/L	59	56	94.92	50	60	47	430	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Fluoride	No	2/15/2008	1/6/2014	µg/L	59	57	96.61	274	274	227	36,100	960	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nitrate	No	2/15/2008	1/6/2014	µg/L	59	12	20.34	9.85	131	131	460	45,000	40 CFR 141, federal MCL	No	No
Nitrite	No	2/15/2008	1/6/2014	µg/L	59	58	98.31	86	86	1,080	19,100	3,300	40 CFR 141, federal MCL	No	No
Metals															
Aluminum	No	6/10/2010	1/6/2014	µg/L	8	4	50	20	20	14.6	113	87	Clean Water Act, freshwater CCC	No	No
Aluminum	Yes	6/10/2010	1/6/2014	µg/L	8	2	25	10	20	39.3	50.8	87	Clean Water Act, freshwater CCC	No	No
Arsenic	Yes	11/3/2008	1/6/2014	µg/L	14	14	100	0	0	1.72	7.04	7.9	DOE/RL-96-61, Table ES-1	No	No
Barium	No	2/15/2008	1/6/2014	µg/L	49	48	97.96	4	4	11.3	194	2,000	40 CFR 141, federal MCL	No	No
Barium	Yes	2/15/2008	1/6/2014	µg/L	36	35	97.22	4	4	9.9	72	2,000	40 CFR 141, federal MCL	No	No
Beryllium	No	2/15/2008	1/6/2014	µg/L	48	0	0	0.1	4	--	--	4.0	40 CFR 141, federal MCL	No	No
Beryllium	Yes	2/15/2008	1/6/2014	µg/L	36	0	0	0.1	4	--	--	4.0	40 CFR 141, federal MCL	No	No
Boron	No	6/10/2010	1/6/2014	µg/L	8	6	75	19	41	7.17	25	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Boron	Yes	8/2/2010	1/6/2014	µg/L	7	5	71.43	41	41	14.1	26.1	3,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chromium	No	2/15/2008	1/6/2014	µg/L	49	11	22.45	0.2	14	2.16	15.5	65	Clean Water Act, freshwater CCC	No	No
Chromium	Yes	2/15/2008	1/6/2014	µg/L	36	10	27.78	1	14	0.404	15	65	Clean Water Act, freshwater CCC	No	No
Copper	No	2/15/2008	1/6/2014	µg/L	49	8	16.33	0.2	6	0.214	17.2	9.0	Clean Water Act, freshwater CCC	No	No
Copper	Yes	2/15/2008	1/6/2014	µg/L	36	6	16.67	0.2	6	0.196	6.1	9.0	Clean Water Act, freshwater CCC	No	No
Hexavalent chromium	No	12/31/2013	1/6/2014	µg/L	5	2	40	2	2	2.2	5.4	10	40 CFR 131, freshwater CCC	No	No
Hexavalent chromium	Yes	12/31/2013	1/6/2014	µg/L	5	3	60	2	2	2.4	5.6	10	40 CFR 131, freshwater CCC	No	No
Iron	No	2/15/2008	1/6/2014	µg/L	48	44	91.67	18	38	20.9	20,700	1,000	Clean Water Act, freshwater CCC	No	No
Iron	Yes	2/15/2008	1/6/2014	µg/L	33	15	45.45	9	40	14.7	230	1,000	Clean Water Act, freshwater CCC	No	No
Lead	No	11/3/2008	1/6/2014	µg/L	14	7	50	0.1	0.2	0.1	2.11	2.1	WAC 173-201A	No	No
Lead	Yes	11/3/2008	1/6/2014	µg/L	14	2	14.29	0.05	0.2	0.125	0.126	2.1	WAC 173-201A	No	No
Lithium	No	6/10/2010	12/7/2010	µg/L	3	3	100	0	0	12	21	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Lithium	Yes	5/7/2008	12/7/2010	µg/L	3	3	100	--	--	12.3	15	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Manganese	No	2/15/2008	1/6/2014	µg/L	49	23	46.94	4	6	1.31	813	384	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Manganese	Yes	2/15/2008	1/6/2014	µg/L	35	14	40	4	6	0.41	43	384	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Molybdenum	No	6/10/2010	1/6/2014	µg/L	8	8	100	--	--	2.41	11.6	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Molybdenum	Yes	6/10/2010	1/6/2014	µg/L	8	8	100	--	--	2.68	11.7	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nickel	Yes	2/15/2008	1/6/2014	µg/L	35	4	11.43	0.2	6	0.33	0.56	52.	Clean Water Act, freshwater CCC	No	No
Selenium	No	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.6	2	2.19	2.19	5.0	Clean Water Act, freshwater CCC	No	No
Selenium	Yes	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.6	2	1.5	1.5	5.0	Clean Water Act, freshwater CCC	No	No
Strontium	No	2/15/2008	1/6/2014	µg/L	48	47	97.92	4	4	55.7	734	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Strontium	Yes	2/15/2008	1/6/2014	µg/L	35	34	97.14	4	4	66.8	734	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Thallium	No	11/3/2008	1/6/2014	µg/L	14	1	7.14	0.05	0.1	0.37	0.37	0.50	40 CFR 141, federal MCLG	No	No
Thallium	Yes	11/3/2008	1/6/2014	µg/L	14	1	7.14	0.05	0.1	0.14	0.14	0.50	40 CFR 141, federal MCLG	No	No
Tin	No	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.1	0.1	0.12	0.12	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tin	Yes	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.05	0.1	0.13	0.13	9,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Uranium	No	11/3/2008	1/6/2014	µg/L	15	15	100	--	--	0.10	6.89	30	40 CFR 141, federal MCL	No	No
Uranium	Yes	12/31/2013	1/6/2014	µg/L	5	5	100	--	--	0.16	4.62	30	40 CFR 141, federal MCL	No	No
Vanadium	No	2/15/2008	1/6/2014	µg/L	49	29	59.18	4.1	17	0.63	26.9	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Vanadium	Yes	2/15/2008	1/6/2014	µg/L	35	24	68.57	10	17	0.75	21.2	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Zinc	No	2/15/2008	1/6/2014	µg/L	49	11	22.45	4	9	4.23	145	91	WAC 173-201A	No	No
Zinc	Yes	2/15/2008	1/6/2014	µg/L	35	6	17.14	2	9	4.6	10	91	WAC 173-201A	No	No
Organochlorine Pesticides															
4,4'-DDD (Dichlorodiphenyldichloroethane)	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0038	0.0096	--	--	0.36	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4,4'-DDE (Dichlorodiphenyldichloroethylene)	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0027	0.013	--	--	0.26	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Alpha-BHC	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0025	0.0096	--	--	0.014	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Alpha-chlordane	No	12/31/2013	12/31/2013	µg/L	2	0	0	0.014	0.014	--	--	0.25	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.012	0.013	--	--	0.049	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Endosulfan I	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0025	0.018	--	--	0.056	Clean Water Act, freshwater CCC	No	No
Endosulfan II	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0095	0.01	--	--	0.056	Clean Water Act. freshwater CCC	No	No
Gamma-BHC (Lindane)	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0025	0.0096	--	--	0.080	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methoxychlor	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.005	0.012	--	--	0.030	Clean Water Act, freshwater CCC	No	No
trans-Chlordane	No	12/31/2013	12/31/2013	µg/L	2	0	0	0.0095	0.0096	--	--	0.25	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Radionuclides															
Cesium-137	No	2/15/2008	1/6/2014	pCi/L	41	0	0	-4.6	1.91	--	--	200	40 CFR 141, federal MCL	No	No
Cobalt-60	No	2/15/2008	1/6/2014	pCi/L	41	0	0	-1.24	6.8	--	--	100	40 CFR 141, federal MCL	No	No
Europium-152	No	2/15/2008	1/6/2014	pCi/L	41	0	0	-27	9.2	--	--	200	40 CFR 141, federal MCL	No	No

Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Europium-154	No	2/15/2008	1/6/2014	pCi/L	41	0	0	-10	10	--	--	60.0	40 CFR 141, federal MCL	No	No
Europium-155	No	2/15/2008	1/6/2014	pCi/L	41	0	0	-35	19	--	--	600	40 CFR 141, federal MCL	No	No
Gross alpha	No	2/15/2008	1/6/2014	pCi/L	47	13	27.66	-0.59	2.6	2.29	3.5	15	40 CFR 141, federal MCL	No	No
Gross beta	No	2/15/2008	1/6/2014	pCi/L	47	44	93.62	0.94	1.3	4.2	71	4.0 mrem/yr	40 CFR 141, federal MCL	--	--
Iodine-129	No	2/15/2008	1/6/2014	pCi/L	40	15	37.5	-0.894	0.616	0.17	0.56	1.0	40 CFR 141, federal MCL	No	No
Neptunium-237	No	11/3/2008	1/6/2014	pCi/L	9	0	0	-0.025	0.17	--	--	15	40 CFR 141, federal MCL	No	No
Selenium-79	No	11/3/2008	1/6/2014	pCi/L	9	3	33.33	-7.99	-1.58	31	39.4	7.3	EPA Method 2013	No	No
Strontium-90	No	2/15/2008	1/6/2014	pCi/L	48	6	12.5	-11	1.1	2.3	4.7	8.0	40 CFR 141, federal MCL	No	No
Technetium-99	No	11/3/2008	12/31/2013	pCi/L	9	6	66.67	-1.1	-0.17	13	110	900	40 CFR 141, federal MCL	No	No
Tritium	No	2/15/2008	1/6/2014	pCi/L	59	50	84.75	-200	1,700	290	66,000	20,000	40 CFR 141, federal MCL	No	No
Semivolatile Organic Compounds															
1,2,4,5-Tetrachlorobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2,4-Trichlorobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2-Dichlorobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	600	40 CFR 141, federal MCL	No	No
2,3,4,6-Tetrachlorophenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4,5-Trichlorophenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4,6-Trichlorophenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dichlorophenol	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1	--	--	24	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dimethylphenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	1	1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,4-Dinitrophenol	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	2	--	--	32	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2,6-Dinitrotoluene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	2.2	--	--	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Chloronaphthalene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Chlorophenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Hexanone	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.08	5	--	--	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Methylnaphthalene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	32.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Methylphenol (cresol, o-)	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	2	--	--	400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Nitroaniline	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
3-Nitroaniline	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4,6-Dinitro-2-methylphenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1.3	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Chloro-3-methylphenol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Methylphenol (cresol, p-)	No	6/10/2010	12/7/2010	µg/L	3	0	0	10	10	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
4-Nitroaniline	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
5-Nitro-o-toluidine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	9.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acenaphthene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acetophenone	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Aniline	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Anthracene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Benzyl alcohol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bis(2-Chloroethoxy)methane	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	48.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bis(2-ethylhexyl) phthalate	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1	--	--	6.0	40 CFR 141, federal MCL	No	No
Butylbenzylphthalate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	46	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Carbazole	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chrysene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dibenzofuran	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Diethylphthalate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	12,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dimethoate	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1.1	--	--	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Di-n-butylphthalate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dinoseb(2-secButyl-4,6-dinitrophenol)	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	2	--	--	7.0	40 CFR 141, federal MCL	No	No
Fluoranthene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Fluorene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	320	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Isophorone	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	46	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexachlorocyclopentadiene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexachloroethane	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
m-Dinitrobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1.6	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methyl parathion	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Naphthalene	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nitrobenzene	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1	--	--	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
n-Nitrosodiphenylamine	No	6/10/2010	12/7/2010	µg/L	3	0	0	1	1	--	--	18	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pentachlorobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	13	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phenacetin	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	40	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phenol	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	4	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Phorate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	3.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
p-Phenylenediamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	3,040	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pronamide	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	1,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pyrene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	240	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Pyridine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	2	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
sym-Trinitrobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tetraethyl dithiopyrophosphate (Sulfotepp)	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	8.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tributyl phosphate	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	1.5	--	--	9.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tris-2-chloroethyl phosphate	No	11/3/2008	11/14/2008	µg/L	6	0	0	1	1	--	--	4.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Volatile Organic Compounds															
1,1,1,2-Tetrachloroethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.09	0.5	--	--	1.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,1,1-Trichloroethane	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.067	1	--	--	200	40 CFR 141, federal MCL	No	No
1,1-Dichloroethane	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.068	1	--	--	7.7	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,1-Dichloroethene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.051	1	--	--	7.0	40 CFR 141, federal MCL	No	No
1,2-Dichloroethene (total)	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.14	1	--	--	72	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,2-Dichloropropane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.077	1	--	--	1.2	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1,4-Dichlorobenzene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.1	1	--	--	8.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
1-Butanol	No	2/15/2008	1/6/2014	µg/L	47	0	0	12	100	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
2-Butanone	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.52	1	--	--	4,800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
4-Methyl-2-pentanone	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.12	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Acetone	No	2/15/2008	1/6/2014	µg/L	46	1	2.17	0.34	5	2.5	2.5	7,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Allyl chloride	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.11	1	--	--	2.1	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bromoform	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.17	1	--	--	5.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Bromomethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.13	2	--	--	11.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Carbon disulfide	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.029	1	--	--	800	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chlorobenzene	No	2/15/2008	1/6/2014	µg/L	45	0	0	0.15	1	--	--	100	40 CFR 141, federal MCL	No	No
Chloroform	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.08	1	--	--	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Chloroprene	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.085	1	--	--	160	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
cis-1,2-Dichloroethylene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.083	1	--	--	16	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dibromomethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.14	1	--	--	80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Dichlorodifluoromethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.074	2	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Ethyl methacrylate	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.11	1	--	--	720	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Table 6-15. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Ethylbenzene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.061	1	--	--	4.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Hexane	No	11/3/2008	11/14/2008	µg/L	6	0	0	0.16	0.16	--	--	480	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Isobutyl alcohol	No	11/3/2008	1/6/2014	µg/L	14	0	0	5	8.7	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methyl methacrylate	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.26	2	--	--	11,200	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Methylene chloride	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.091	1	--	--	5.0	40 CFR 141, federal MCL	No	No
Styrene	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.074	1	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Tetrachloroethene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.088	1	--	--	5.0	40 CFR 141, federal MCL	No	No
Tetrahydrofuran	No	2/15/2008	1/6/2014	µg/L	47	0	0	1.1	3.2	--	--	14,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Toluene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.029	1	--	--	640	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
trans-1,2-Dichloroethylene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.083	1	--	--	100	40 CFR 141, federal MCL	No	No
Trichloromonofluoromethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.1	1	--	--	2,400	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Vinyl acetate	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.18	2	--	--	8,000	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Xylenes (total)	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.11	1.6	--	--	1,600	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A).

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Table 6-16. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (Some MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Metals															
Antimony (all results)	No	2/15/2008	1/6/2014	µg/L	49	1	2.04	0.6	60	5.8	5.8	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (all results)	Yes	2/15/2008	1/6/2014	µg/L	36	0	0	0.3	60	--	--	6.0	40 CFR 141, federal MCL	No	Yes
Antimony (Method 6010 results)	No	2/15/2008	12/9/2013	µg/L	41	1	2.43902439	20	60	5.8	5.8	6.0	40 CFR 141, federal MCL	Yes	Yes
Antimony (Method 6010 results)	Yes	2/15/2008	4/28/2011	µg/L	28	0	0	32	60	--	--	6.0	40 CFR 141, federal MCL	Yes	Yes
Antimony (Method 200.8 results)	No	6/10/2010	1/6/2014	µg/L	8	0	0	0.6	0.6	--	--	6.0	40 CFR 141, federal MCL	No	No
Antimony (Method 200.8 results)	Yes	6/10/2010	1/6/2014	µg/L	8	0	0	0.3	0.6	--	--	6.0	40 CFR 141, federal MCL	No	No
Cadmium (all results)	No	2/15/2008	1/6/2014	µg/L	49	1	2.04	0.1	4	0.116	0.116	0.25	Clean Water Act, freshwater CCC	No	Yes
Cadmium (all results)	Yes	2/15/2008	1/6/2014	µg/L	36	2	5.56	0.05	4	4.2	4.6	0.25	Clean Water Act, freshwater CCC	No	Yes
Cadmium (Method 6010 results)	No	2/15/2008	12/9/2013	µg/L	41	0	0	0.91	4	--	--	0.25	Clean Water Act, freshwater CCC	Yes	Yes
Cadmium (Method 6010 results)	Yes	2/15/2008	4/28/2011	µg/L	28	0	0	4	4.6	--	--	0.25	Clean Water Act, freshwater CCC	Yes	Yes
Cadmium (Method 200.8 results)	No	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.1	0.2	0.12	0.12	0.25	Clean Water Act, freshwater CCC	No	No
Cadmium (Method 200.8results)	Yes	6/10/2010	1/6/2014	µg/L	8	0	0	0.05	0.2	--	--	0.25	Clean Water Act, freshwater CCC	No	No
Cobalt (all results)	No	2/15/2008	1/6/2014	µg/L	49	1	2.04	0.1	5	0.312	0.312	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (all results)	Yes	2/15/2008	1/6/2014	µg/L	36	6	16.7	0.05	5	0.13	6.5	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 6010 results)	No	2/15/2008	12/9/2013	µg/L	41	0	0	4	5	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 6010 results)	Yes	2/15/2008	4/28/2011	µg/L	28	2	7.14	4	5	4.3	6.5	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Cobalt (Method 200.8 results)	No	6/10/2010	1/6/2014	µg/L	8	1	12.5	0.1	0.1	0.31	0.31	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Cobalt (Method 200.8 results)	Yes	6/10/2010	1/6/2014	µg/L	8	4	50	0.05	0.1	0.13	0.91	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	No
Nickel (all results)	No	2/15/2008	1/6/2014	µg/L	49	6	12.24	0.2	66.5	0.234	7.7	52.0	Clean Water Act, freshwater CCC	No	Yes
Nickel (Method 6010 results)	No	2/15/2008	12/9/2013	µg/L	44	2	4.54	4	66.5	5.6	7.7	52.0	Clean Water Act, freshwater CCC	No	Yes
Nickel (Method 200.8 results)	No	12/31/2013	1/6/2014	µg/L	5	4	80	0.2	0.2	0.23	0.85	52.0	Clean Water Act, freshwater CCC	No	No
Silver (all results)	No	2/15/2008	1/6/2014	µg/L	45	1	2.22	0.1	7	39	39	2.6	WAC 173-201A	No	Yes
Silver (all results)	Yes	2/15/2008	1/6/2014	µg/L	34	3	8.82	0.05	7	7	8.1	2.6	WAC 173-201A	No	Yes
Silver (Method 6010 results)	No	2/15/2008	12/9/2013	µg/L	37	1	2.70	4	7	39	39	2.6	WAC 173-201A	Yes	Yes
Silver (Method 6010 results)	Yes	2/15/2008	4/28/2011	µg/L	26	3	11.5	5	7	7	8.1	2.6	WAC 173-201A	Yes	Yes
Silver (Method 200.8 results)	No	6/10/2010	1/6/2014	µg/L	8	0	0	0.1	0.2	--	--	2.6	WAC 173-201A	No	No
Silver (Method 200.8 results)	Yes	6/10/2010	1/6/2014	µg/L	8	0	0	0.05	0.2	--	--	2.6	WAC 173-201A	No	No

Table 6-16. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (Some MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Organochlorine Pesticides															
Heptachlor	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0025	0.0096	--	--	0.0038	Clean Water Act, freshwater CCC	No	Yes
Heptachlor epoxide	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0032	0.016	--	--	0.0038	Clean Water Act, freshwater CCC	No	Yes
Radionuclides															
Protactinium-231	No	11/3/2008	1/6/2014	pCi/L	9	0	0	-58	51	--	--	15.0	40 CFR 141, federal MCL	No	Yes
Semivolatile Organic Compounds															
Aramite	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	20	--	--	3.5	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Diallate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	2	--	--	1.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Hexachlorophene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	10	--	--	4.8	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Volatile Organic Compounds															
1,1,2,2-Tetrachloroethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.098	1	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
1,1,2-Trichloroethane	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.063	1	--	--	0.77	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
1,2-Dichloroethane	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.1	1	--	--	0.48	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Acrolein	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.52	5	--	--	3.0	Clean Water Act, freshwater CCC	No	Yes
Benzene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.032	1	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Bromodichloromethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.088	1	--	--	0.71	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Carbon tetrachloride	No	2/15/2008	1/6/2014	µg/L	47	1	2.13	0.042	1	1.3	1.3	0.63	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
cis-1,3-Dichloropropene	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.073	1	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Dibromochloromethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.13	1	--	--	0.52	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Methacrylonitrile	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.5	2	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
trans-1,3-Dichloropropene	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.08	1	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Trichloroethene	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.11	1	--	--	1.0	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes
Vinyl chloride	No	2/15/2008	1/6/2014	µg/L	47	0	0	0.032	1	--	--	0.061	WAC 173-340-720(4)(b)(iii)(A) and (B)	No	Yes

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A).

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Table 6-17. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Metals															
Arsenic	No	11/3/2008	1/6/2014	µg/L	15	14	93.33	25	25	1.58	6.76	7.9	DOE/RL-96-61, Table ES-1	Yes	Yes
Mercury	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.1	0.1	--	--	0.012	40 CFR 131, freshwater CCC	Yes	Yes
Mercury	Yes	6/10/2010	1/6/2014	µg/L	6	0	0	0.05	0.1	--	--	0.012	40 CFR 131, freshwater CCC	Yes	Yes
Organochlorine Pesticides															
4,4'-DDT (Dichlorodiphenyltrichloroethane)	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0056	0.022	--	--	0.0010	Clean Water Act, freshwater CCC	Yes	Yes
Aldrin	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.004	0.0096	--	--	0.0019	WAC 173-201A	Yes	Yes
Chlordane	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.095	0.18	--	--	0.0043	Clean Water Act, freshwater CCC	Yes	Yes
Dieldrin	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0023	0.0096	--	--	0.0019	40 CFR 131, freshwater CCC	Yes	Yes
Endrin	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.0028	0.017	--	--	0.0023	40 CFR 131, freshwater CCC	Yes	Yes
Toxaphene	No	11/3/2008	12/31/2013	µg/L	8	0	0	0.25	0.33	--	--	0.00020	Clean Water Act, freshwater CCC	Yes	Yes
Semivolatile Organic Compounds															
1,2,3-Trichloropropane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.15	1	--	--	0.0015	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2,4-Dinitrotoluene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.28	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2-Acetylaminofluorene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.023	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
2-Naphthylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	1	1	--	--	0.049	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3,3'-Dichlorobenzidine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.19	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3,3'-Dimethylbenzidine	No	6/10/2010	1/6/2014	µg/L	6	0	0	2.6	4	--	--	0.0080	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
3-Methylcholanthrene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.0040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
4-Aminobiphenyl	No	6/10/2010	1/6/2014	µg/L	6	0	0	1	1	--	--	0.0042	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
4-Chloroaniline	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
7,12-Dimethylbenz[a]anthracene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.00035	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Azobenzene	No	6/10/2010	12/7/2010	µg/L	3	0	0	1	1	--	--	0.40	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(a)anthracene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(a)pyrene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.012	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(b)fluoranthene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Benzo(k)fluoranthene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Bis(2-chloro-1-methylethyl)ether	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.63	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Bis(2-chloroethyl) ether	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Chlorobenzilate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.80	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Dibenz[a,h]anthracene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes

Table 6-17. Comparison of MDLs from 200-PO-1 Groundwater OU Near River Exposure Area to Human Health and Aquatic Comparison Values (All MDLs Less Than or Equal to Comparison Value)

Analyte Name	Filtered?	First Sample Date	Last Sample Date	Units	Number of Results	Number of Detects	Frequency of Detects (%)	Min. Nondetect	Max. Nondetect	Min. Detect	Max. Detect	Comparison Value	Comparison Value Basis	Is Min. Nondetect > Comparison Value?	Is Max. Nondetect > Comparison Value?
Disulfoton	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.64	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Hexachlorobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.055	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Hexachlorobutadiene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.56	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Indeno(1,2,3-cd)pyrene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.12	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Kepone	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	20	--	--	0.0088	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Methyl Methanesulfonate	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.88	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Nitrosopyrrolidine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.021	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodiethylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.00029	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodimethylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	2	--	--	0.00086	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodi-n-butylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.0081	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosodi-n-dipropylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosomethylethylamine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.0040	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosomorpholine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.013	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
n-Nitrosopiperidine	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.0093	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Parathion	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.013	Clean Water Act, freshwater CCC	Yes	Yes
p-Dimethylaminoazobenzene	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.019	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachloroethane	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.49	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachloronitrobenzene (PCNB)	No	6/10/2010	1/6/2014	µg/L	6	0	0	1	1	--	--	0.34	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Pentachlorophenol	No	11/3/2008	1/6/2014	µg/L	12	0	0	0.9	2	--	--	0.22	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Safrol	No	6/10/2010	1/6/2014	µg/L	6	0	0	0.9	1	--	--	0.4	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Volatile Organic Compounds															
1,2-Dibromo-3-chloropropane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.41	1	--	--	0.055	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
1,2-Dibromoethane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.13	1	--	--	0.022	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
1,4-Dioxane	No	11/3/2008	1/6/2014	µg/L	14	0	0	0.9	7.6	--	--	0.44	WAC 173-340-720(4)(b)(iii)(A) and (B)	Yes	Yes
Acrylonitrile	No	12/9/2013	12/31/2013	µg/L	3	0	0	5	5	--	--	0.059	40 CFR 131, freshwater CCC	Yes	Yes

Note: Shading denotes those analytes that were identified as COPCs in DOE/RL-2007-31, *Remedial Investigation/Feasibility Study Work Plan for the 200-PO-1 Groundwater Operable Unit* (Appendix A.)

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Cobalt has a detection frequency of 23 percent in unfiltered samples and a detection frequency of 87 percent in unfiltered samples. A small percentage of results analyzed by Method 6010 report MDLs greater than the comparison value. The MDL results reported by Method 6010 greater than the comparison value are not considered usable for RI/FS decision-making purposes because they cannot be used to confirm their absence at concentrations less than the comparison value. The following summarizes the number of MDLs for cobalt analyzed by Method 6010 that are not considered usable:

- **Total cobalt:** 64 of 1,175 MDLs (5.4 percent) are greater than the comparison value of 4.6 µg/L.
- **Dissolved cobalt:** 58 of 1,006 MDLs (5.8 percent) are greater than the comparison value of 4.6 µg/L.

The remaining 16 analytes listed in Table 6-13 were not detected in any of the groundwater samples and are not known to be associated with a release in the 200 East Area. Results associated with these analytes are considered usable for concluding that these analytes are absent from groundwater.

As shown in Table 6-14, 53 analytes report all MDLs greater than their respective comparison value. Included in this group of analytes are two of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). Analytes identified as COPCs and analytes with detections are discussed below.

1,4-Dioxane and pentachlorophenol were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). These two analytes were not detected in any groundwater sample. The laboratory cannot attain the comparison value for 1,4-dioxane (0.44 µg/L) or pentachlorophenol (0.22 µg/L); therefore, nondetected concentrations are reported as less than or equal to 12 µg/L for 1,4-dioxane and less than or equal to 2.4 µg/L for pentachlorophenol. The MDLs reported for 1,4-dioxane and pentachlorophenol are less than the practical quantitation limits of 500 µg/L and 10 µg/L, respectively, listed in Appendix A of the RI/FS Work Plan. The MDLs for these analytes are considered usable because analytical laboratories generally cannot attain concentrations less than or equal to the comparison values.

With the exception of a single detection of n-nitrosodi-n-propylamine, the 51 analytes listed in Table 6-14 were not detected in any of the groundwater samples and are not known to be associated with a release in the 200 East Area. These analytes were reported with multi-component method-based analytical methods. This single detection is considered suspect because its presence is anomalous relative to additional sampling events at the same well (see Appendix B for trend charts). Results associated with these analytes are considered usable for concluding that these analytes are absent from groundwater.

6.4.2 MDL Results for Near-River Groundwater Samples

As shown in Table 6-15, all MDLs for 161 analytes are less than or equal to their respective comparison value. The MDLs for these analytes are considered usable for all RI/FS purposes. Included in this group of analytes are 26 of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The MDLs for all analytes listed in Table 6-12 are considered usable for all RI/FS purposes.

As shown in Table 6-16, 28 analytes are reported with a portion of the MDLs greater than their respective comparison value. Included in this group of analytes are 13 of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). Analytes identified as COPCs and analytes with detections are discussed below.

1,1,2,2-Tetrachloroethane, 1,2-dichloroethane, benzene, heptachlor, heptachlor epoxide, trichloroethene and vinyl chloride were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). These seven analytes were not detected in any of the groundwater samples, although a portion of the MDLs are greater than their respective comparison value, and all MDLs are less than the practical

quantitation limit listed in the RI/FS Work Plan. The results of these analyses are considered usable for concluding these analytes are absent at concentrations less than their respective comparison values.

Carbon tetrachloride was identified as a COPC in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). The laboratory cannot attain the comparison value for carbon tetrachloride (0.63 µg/L); therefore, nondetected concentrations are reported as less than or equal to 1 µg/L. The MDLs reported for carbon tetrachloride are less than the practical quantitation limit of 2 µg/L listed in Appendix A of the RI/FS Work Plan. A single detection of carbon tetrachloride was reported in groundwater, and this detection is considered suspect because its presence is anomalous relative to additional sampling events at the same well (see Appendix B for trend charts). Results associated with carbon tetrachloride are considered usable for concluding its absence from groundwater.

Protactinium-231 was identified as a COPC in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). A small percentage of MDLs for iodine-129 (one of nine MDLs) are greater than the comparison value of 15 pCi/L. Protactinium-231 was not detected in any groundwater sample. Results associated with protactinium-231 are considered usable for concluding its absence from groundwater.

Five metals (antimony, cadmium, cobalt, nickel, and silver) report a portion of their MDLs at concentrations above the comparison values. Groundwater samples were analyzed using the following analytical methods:

- ICP/AES using EPA Method 6010 in SW-846
- ICP/MS using EPA Method 200.8

As shown in Table 6-16, results for each of these metals are presented separately based on the analytical method used (e.g., Method 6010 results or Method 200.8 results). The MDLs for all five metals analyzed by Method 200.8 are reported at concentrations less than their respective comparison value; these results are considered usable for all RI/FS decision-making purposes.

Antimony, cadmium, cobalt, and silver each have low detection frequencies (less than 12 percent). These five metals also report a high percentage of MDLs analyzed by Method 6010 that are greater than their respective comparison values. The MDL results reported by Method 6010 are not considered usable for RI/FS decision-making purposes because the results cannot be used to confirm the absence of these metals at concentrations less than the comparison value. The following summarizes the number of MDL results for analyzed by Method 6010 that are not considered usable:

- **Total antimony:** All 40 MDLs (100 percent) are greater than comparison value of 6 µg/L.
- **Dissolved antimony:** All 28 MDLs (100 percent) are greater than comparison value of 6 µg/L.
- **Total cadmium:** All 41 MDLs are less than the human health comparison value of 5 µg/L, and all 41 MDLs (100 percent) are greater than the aquatic comparison value of 0.25 µg/L.
- **Dissolved cadmium:** All 28 MDLs (100 percent) are greater than the aquatic comparison value of 0.25 µg/L.
- **Total cobalt:** Eight of 41 MDLs (20 percent) are greater than the comparison value of 4.6 µg/L.
- **Dissolved cobalt:** Eight of 26 MDLs (31 percent) are greater than the comparison value of 4.6 µg/L.
- **Total silver:** All 36 MDLs are less than the human health comparison value of 80 µg/L, and all 36 MDLs (100 percent) are greater than the aquatic comparison value of 2.6 µg/L.

- **Dissolved silver:** All 23 MDLs (100 percent) are greater than the aquatic comparison value of 2.6 µg/L.

It should be noted that one of 41 MDLs reported for total nickel was greater than the aquatic comparison value of 52 µg/L and is not considered usable.

The remaining 14 analytes listed in Table 6-16 were not detected in any of the groundwater samples and are not known to be associated with a release in the 200 East Area. Results associated with these analytes are considered usable for concluding they are absent from groundwater.

As shown in Table 6-17, 52 analytes report all MDLs greater than their respective comparison value. Included in this group of analytes are two of the 42 COPCs identified in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). Analytes identified as COPCs and analytes with detections are discussed below.

1,4-Dioxane and pentachlorophenol were identified as COPCs in the RI/FS Work Plan (DOE/RL-2007-31, Appendix A). These two analytes were not detected in any groundwater sample. The laboratory cannot attain the comparison value for 1,4-dioxane (0.44 µg/L) or pentachlorophenol (0.22 µg/L); therefore, nondetected concentrations are reported as less than or equal to 7.6 µg/L for 1,4-dioxane and less than or equal to 2 µg/L for pentachlorophenol. The MDLs reported for 1,4-dioxane and pentachlorophenol are less than the practical quantitation limits of 500 µg/L and 10 µg/L, respectively, listed in Appendix A of the RI/FS Work Plan. The MDLs for these analytes are considered usable because analytical laboratories generally cannot attain concentrations less than or equal to the comparison values.

The remaining 50 analytes listed in Table 6-17 were not detected in any of the groundwater samples and are not known to be associated with a release in the 200 East Area. These analytes were reported with multi-component method-based analytical methods. Results associated with these analytes are considered usable for concluding they are absent from groundwater.

6.5 Comparability – Trend Charts

A list of analytical methods used for groundwater samples collected within the 200-PO-1 Groundwater OU is provided in Table 1-2. All groundwater data were collected and analyzed in accordance with *Hanford Analytical Services Quality Assurance Requirements Documents* (HASQARD) (DOE/RL-96-68) and the testing specified and used methods based on the SW-846, along with current radiochemical methods. All of these methods have been specified for Hanford Site work for greater than 10 years; therefore, the data should be compatible and comparable over time.

Appendix B contains trend charts produced for a number of analytes that were reported at concentrations greater than their respective comparison value (see Table 5-4). These charts plot the concentration of the target analyte at a specific monitoring well from measurements that have been collected over the past 10 years. The purpose of these charts is to determine if the results are associated with an upward or downward trend (the results for an analyte appear to be comparable), or if a result appears to be anomalous and is not consistent or comparable with results obtained over the 10-year time period.

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7 Hanford Groundwater Report Review

The CHPRC Soil and Groundwater Remediation Project collects groundwater samples, as needed, to address characterization and monitoring requirements for the various compliance programs at the Hanford Site (i.e., RCRA, CERCLA, the *Atomic Energy Act of 1954*, HASQARD [DOE/RL-96-68], and CHPRC-00189, *CH2M Hill Plateau Remediation Company Environmental Quality Assurance Program Plan*). The results from sample analyses are evaluated and compiled into an annual Hanford Site groundwater monitoring report. The annual groundwater monitoring report includes an appendix that provides an overview of the QA/QC information generated to support these programs. As discussed in Chapter 3 of this report, the purpose of Step 5 of the DQA process is to draw conclusions from the data. Steps 3 and 4 of the DQA process were not applicable because groundwater data for the 200-BP-5 Groundwater OU were collected using a judgmental sample design. As such, the results presented in Chapters 6, 7, and 8 are used to draw conclusions about the usability of the data.

Review of the Hanford Site annual groundwater monitoring report provides information regarding the overall quality and performance of the groundwater sampling and analytical activities. The 200-PO-1 Groundwater OU data are a subset of the overall Hanford Site groundwater monitoring program described in the annual report. As an evaluation of the quality of the 200-PO-1 Groundwater OU data, it is useful to compare the performance metrics of the 200-PO-1 Groundwater OU data to the overall Hanford Site groundwater data set.

Table 7-1 summarizes the QA/QC results for Hanford Site groundwater monitoring over the time period considered in this DQA report, as well as the QA/QC results for the 200-PO-1 Groundwater OU data set. Results are not provided for all QA/QC parameters for all years because of the variations in how the data are compiled in each annual report. Citations are provided for each annual report for readers who wish to review the details for a specific year. As shown in Table 7-1, the 200-PO-1 Groundwater OU data set was equivalent or better than the Hanford Sitewide data set (as summarized in the Hanford Site annual groundwater monitoring reports) in terms of field and laboratory QC performance.

7.1.1 Hanford Site Groundwater Quality Control and Quality Assurance

The Hanford Site groundwater program includes several QA elements that serve to verify the overall quality of the sampling and analysis activities and to highlight potential problems for corrective action. The following activities are included:

- **Proficiency testing program studies:** Involve the provision of blind known standards to all Hanford Site contract laboratories. These programs are administered by independent third-party organizations, and the results are available to data users on the Hanford Site.
- **Double-blind studies:** Involve providing known standards to the laboratory disguised as samples. These provide a measure of both inter- and intra-laboratory precision and accuracy. The studies also help groundwater staff troubleshoot analytical problems identified through data reviews and QC evaluations.
- **Laboratory audits:** Performed either independently from the Hanford Site or as part of a DOE contract analytical program national audit team.
- **Laboratory QA/QC evaluation:** Performed on the entire Hanford Site data set annually and reported as part of the annual groundwater monitoring reports.

Review of the results of these evaluations did not identify any issues that could negatively affect the 200-PO-1 Groundwater OU data that had not already been evaluated and resolved, either with qualification flags or re-run samples.

7.1.1.1 Analytical Troubleshooting

If the results of any of the data QC or QA reviews indicate a potential anomaly in the results, RDRs are initiated by project scientists. During evaluations of RDR submittals, trends may be observed that warrant further investigation by the groundwater support staff.

In 2008, RDRs had been filed for 1,677 of approximately 128,000 analytical results (1.3 percent), of which 578 were suspect, 112 rejected, and one questionable. Roughly half of the issues occurred prior to receipt at the laboratories. Most issues were because of missed hold times, samples received outside of temperature specifications, chain-of-custody issues, and incorrect sample preservation. RDR resolution includes appropriate qualification flags applied to the affected data within the HEIS database.

In 2009, RDRs had been filed for 1,659 of approximately 206,000 analytical results (less than 1 percent), of which 675 were suspect, 80 rejected, and 4 questionable. The bulk of the RDRs (72 percent) were filed on metals results. RDRS also were filed on WSCF results from wet chemistry methods (10 percent), organic methods (6 percent), and radiological methods (12 percent). RDRs to the field and other laboratories were scattered among a varied group of methods and issues. Approximately 17 percent of the RDRs from the other laboratories were for iodine-129 analysis.

In 2010, RDRs had been filed for 2,613 of approximately 245,705 analytical results (approximately 1 percent), of which 1,637 were suspect, and 16 rejected. The bulk of the requests RDRs (46 percent) were filed on metals results. RDRs also were filed on WSCF results from wet chemistry methods (6 percent), organic methods (20 percent), and radiological methods (28 percent). RDRs to the field and other laboratories were scattered among a varied group of methods and issues.

In 2011, RDRs had been filed for 1,406 of approximately 175,221 analytical results (approximately 1 percent), of which 661 were suspect, and 2 rejected. The bulk of the RDRs (57.5 percent) were filed on metals results. RDRs also were filed on WSCF results from wet chemistry methods (18.5 percent), organic methods (14.4 percent), and radiological methods (9.6 percent). RDRs to the field and other laboratories were scattered among a varied group of methods and issues.

In 2012, RDRs had been issued for three field blanks that had been swapped with well samples. All three field blank types (equipment blank, field transfer blank, and field transfer blank) contributed to the 8,193 VOC field blank results. Of the 8,193 results, 149 (1.8 percent) exceeded QC limits and included 120 methylene chloride results and 23 acetone results.

Table 7-1. Quality Assurance/Quality Control Results for Groundwater Monitoring

	FY 2009 DOE/RL-2010-11	FY 2010 DOE/RL-2011-01	FY 2011 DOE/RL-2011-118	FY 2012 DOE/RL-2013-22	2008 Through 2013 DQA Results	FY 2008 DOE/RL-2008-66
Results of national performance evaluation studies – percent of acceptable results	98	—	98	—	—	—
Field blanks – percent of acceptable results	96	97	97	98	98.1	89.9
Field duplicates – percent of acceptable results	97	99	93	95	94.2	79.8
Split samples – percent of acceptable results	75	77	78	84	86.4	70.0
Holding times met – percent of nonradiological samples with acceptable results	99	99	99	99.6	99.6	99.7
Laboratory duplicates – percent of results within acceptance limits	97	99	99	99.2	97.5	85.2
Method blanks – percent without contamination	98	99.8	99.2	99.6	98.5	94
Laboratory control samples – percent of acceptable results	99	99.4	99.6	99	99.2	94.3
Matrix spike/matrix duplicates – percent of acceptable results	96	99	99	98.5	99.2	96.6
Surrogates – percent of acceptable results	99	—	97.5	97.5	98.4	97.4

Table 7-1. Quality Assurance/Quality Control Results for Groundwater Monitoring

	FY 2009 DOE/RL-2010-11	FY 2010 DOE/RL-2011-01	FY 2011 DOE/RL-2011-118	FY 2012 DOE/RL-2013-22	2008 Through 2013 DQA Results	FY 2008 DOE/RL-2008-66
Requests for Data Review – Number of Analytical Results	1,677	1,659	2,613	1,406	3	

Sources: DOE/RL-2008-66, *Hanford Site Groundwater Monitoring for Fiscal Year 2008.*

DOE/RL-2010-11, *Hanford Site Groundwater Monitoring and Performance Report for 2009: Volumes 1 & 2.*

DOE/RL-2011-01, *Hanford Site Groundwater Monitoring Report for 2010.*

DOE/RL-2011-118, *Hanford Site Groundwater Monitoring for 2011.*

DOE/RL-2013-22, *Hanford Site Groundwater Monitoring Report for 2012.*

DQA = data quality assessment

FY = fiscal year

8 Field Quality Control

Groundwater results are evaluated by comparing the electronic field QC information to established field QC performance requirements. Field performance requirements are listed in Table 8-1.

Table 8-1. Field Quality Control Acceptance Criteria

QC Element	Acceptance Criteria
Field Duplicates	Field duplicates with at least one result five times greater than the MDL or MDA must have an RPD less than or equal to 20 percent to be considered acceptable.
Field Split Samples	Splits sample results were evaluated when both results were at least five times greater than the MDL or MDA of the respective laboratories or when at least one result was greater than five times the MDL or MDA of both laboratories. In cases where a nondetected result was compared with a measured value, the MDL or MDA was used for the nondetected result. Split control limit is a RPD of less than or equal to 20 percent.
Field Blanks	Because MDLs are specific to the laboratory and may change during the reporting period, the limits are presented as a range. However, each result was evaluated according to the MDL in effect at the time the sample was analyzed.

MDA = minimum detectable activity
MDL = method detection limit
QC = quality control
RPD = relative percent difference

8.1 Field Quality Sample Results

During the period of this assessment, 30,196 field QC results were generated, which is approximately 21.6 percent of the total groundwater sample results obtained for the 200-PO-1 Groundwater OU. These consisted of 4,668 field duplicate results; 416 field split results; and 25,112 field blank results, which consisted of a combination of field transfer blanks, equipment rinsate blanks, full trip blanks, and trip blanks. A field trip blank is analyzed for all constituents rather than for only volatile organics. The following subsections provide further information on field QC results, as well as a breakdown of those results by analyte and field QC type. The field QC elements were evaluated against the criteria listed in Table 8-1.

As discussed in Chapter 3 of this report, the purpose of Step 5 of the DQA process is to draw conclusions from the data. Steps 3 and 4 of the DQA process were not applicable because groundwater data for the 200-BP-5 Groundwater OU were collected using a judgmental sample design. As such, the results presented in Chapters 6, 7, and 8 are used to draw conclusions about the usability of the data.

8.1.1 Field Quality Control Requirements

Field QC procedures must be followed in the field to ensure that reliable data are obtained. Field QC samples are collected to evaluate the potential for cross-contamination and to provide information pertinent to field variability. Field QC for sampling generally requires the collection of field replicates (duplicates), trip or field blanks, and equipment blanks.

8.1.1.1 Field Duplicate Samples

Field duplicate samples are two separate samples collected from the same source, placed in separate sample containers, and analyzed independently to estimate precision, including sampling and analytical variability. The measure of precision for field duplicate samples is the RPD between duplicate pairs.

The RPD is calculated for a field duplicate sample only when one result or the other is at least five times the detection limit.

Table 8-2 lists the total number of field duplicates reported in the 200-PO-1 Groundwater OU data set. Table 8-3 shows a summary of the field duplicate results by analyte that exceeded the QC criteria listed in Table 8-1.

Table 8-2. Total Field Duplicate Results by Analyte Class

Analyte Class	Results
Anions	103
General Chemistry	362
Metals	2,588
Radiochemistry	268
Semivolatile Organic Compounds	691
Volatile Organic Compounds	796
Total	**4,808**

In the 200-PO-1 Groundwater OU data set, 4,808 pairs of field duplicate samples were reported. Of these 4,808 pairs, 28 individual analytes had results that exceeded the acceptance criteria. There were 2,100 field duplicate pairs collected that were associated with these 28 analytes. Of these 2,100 field duplicates, 971 pairs met the evaluation criteria. Of these 971, 54 or 1.1 percent had results that exceeded the QC criteria. The RPDs of these exceedances range from 20.3 to 176.7. Analytes and properties with RPDs greater than or equal to 50 percent include ammonium, coliform bacteria, aluminum, chromium, cobalt, copper, lead, uranium-235, chloromethane, and methylene chloride.

8.1.2 Field Split Samples

Field split samples are collected from a sampling location on the same day and time and submitted to two different laboratories for analysis. The purpose of such samples is to monitor the comparability of the data generated by different laboratories. The acceptance criterion is an RPD less than or equal to 20 for the two laboratory's results.

In the 200-PO-1 Groundwater OU data set, 432 pairs of split samples were reported. Of these 432 pairs, only one analyte had results that exceeded the QC acceptance criteria listed in Table 8-1. Three pairs of split samples collected were associated with this analyte. Two of the three pairs were evaluated. Of the two evaluated pairs, one pair (50 percent) was out of limits. The RPD of this exceedance was 29.9. Table 8-4 lists the total number of field split results reported in the 200-PO-1 Groundwater OU data set by analyte class. Table 8-5 lists the field split results that exceeded the QC criteria by analyte. Analytes with high RPDs (greater than 50 percent) include cyanide, gross beta, technetium-99, and tin.

Table 8-3. Summary of Field Duplicate Results Exceeding Quality Control Criteria by Analyte

Analyte	Class	Total Number Collected	Number Evaluated[a]	Number Out of Limits[b]	Percent Out of Limits[c]	Range of Out of Limit RPD
Ammonium	Anions	12	3	2	66.7	128.1-170.4
Coliform Bacteria	General chemistry	8	1	1	100	23.2
Aluminum	Metals	11	2	1	50	30.3
Arsenic	Metals	65	46	5	10.9	22.2-65.5
Barium	Metals	131	126	1	0.79	27.3
Calcium	Metals	125	125	1	0.80	24.7
Chromium	Metals	131	4	2	50	22.2-114.3
Cobalt	Metals	131	2	1	50	170.4
Copper	Metals	131	2	2	100	67.3-176.7
Iron	Metals	124	22	8	36.4	21.1-107.7
Lead	Metals	36	3	2	66.7	26.8-155.5
Magnesium	Metals	125	125	1	0.80	24.5
Manganese	Metals	125	11	1	9.1	47.9
Nickel	Metals	125	7	1	14.3	107.8
Potassium	Metals	125	124	1	0.8	22.7
Silicon	Metals	5	5	1	20	24.1
Sodium	Metals	125	125	1	0.80	22.8
Strontium	Metals	125	125	1	0.80	23.7
Vanadium	Metals	125	13	2	15.4	20.5-33.7
Zinc	Metals	125	5	1	20	55.6

Table 8-3. Summary of Field Duplicate Results Exceeding Quality Control Criteria by Analyte

Analyte	Class	Total Number Collected	Number Evaluated[a]	Number Out of Limits[b]	Percent Out of Limits[c]	Range of Out of Limit RPD
Gross Alpha	Radiochemistry	46	3	1	33.3	40.5
Gross Beta	Radiochemistry	46	37	6	16.2	20.4-100
Iodine-129	Radiochemistry	23	14	5	35.7	29.4-78
Tritium	Radiochemistry	39	34	1	2.9	71.7
Uranium-233/234	Radiochemistry	3	3	1	33.3	20.3
Uranium-235	Radiochemistry	4	2	2	100	53.3-75
Chloromethane	VOC	3	1	1	100	150.1
Methylene Chloride	VOC	26	1	1	100	27.8
Total		**2,100**	**971**	**54**		

a. Duplicates with at least one result five times greater than the method detection limit or minimum detectable activity were evaluated.

b. Duplicate control limit is a relative percent difference less than or equal to 20 percent.

c. In cases where a nondetected result was compared with a measured value, the method detection limit or minimum detectable activity was used for the nondetected concentration.

RPD = relative percent difference

VOC = volatile organic compound

Table 8-4. Total Field Split Results by Analyte Class

Analyte Class	Results
Anions	3
General Chemistry	63
Metals	0
Radiochemistry	12
Semivolatile Organic Compounds	55
Volatile Organic Compounds	299
Total	**432**

Table 8-5. Summary of Field Split Samples Exceeding Quality Control Criteria

Analyte Name	Analyte Class	Total Number of Splits Collected	Number of Splits Evaluated[a]	Number Out of Limits[b]	Percent Out of Limits[c]	Range of Out of Limit RPD
Tritium	Radiochemistry	3	2	1	50	29.88
Total		**3**	**2**	**1**		

a. Splits sample results were evaluated when both results were at least five times greater than the method detection limit or minimum detectable activity of the respective laboratories, or when at least one result was greater than five times the method detection limit or minimum detectable activity of both laboratories. In cases where a nondetected result was compared with a measured value, the method detection limit or minimum detectable activity was used for the nondetected result.

b. Split control limit is a relative percent difference less than or equal to 20 percent.

c. The percent out of limits is based on the number of duplicates evaluated, not the total number of duplicates.

RPD = relative percent difference

8.1.3 Field Blank Samples

Three types of field blanks were gathered during the collection of 200-PO-1 Groundwater OU groundwater samples: equipment rinsate blanks, field transfer blanks, and trip blanks. Equipment rinsate blanks are high-purity water samples used in the final rinse of sampling equipment before the equipment is reused to collect another sample. These blanks are not required for sampling events using disposable or dedicated sampling equipment.

Field transfer blanks are generated by pouring laboratory water into sample containers in the field during a sampling event to detect any contaminants that may be introduced into groundwater during the bottle-filling activities. Trip blanks are clean water samples that are prepared in the laboratory and taken into the field with the sampling crew. Trip blanks are a measure of potential contamination associated with sample collection and transportation to the laboratory.

For the purpose of the DQA, all blank results were pooled. Table 8-6 lists the total field blank results reported in the 200-PO-1 Groundwater OU data set by analyte class. Table 8-7 summarizes the field blank

results that exceeded QC criteria by analyte. There were 26,137 individual blank results reported with the 200-PO-1 Groundwater OU data set. Of the 26,137 results, 45 individual analytes exceeded the acceptance criteria in Table 8-1. In total, 4,782 field blank results were associated with these 45 analytes. Of these 4,782 results, 578 or 2.2 percent had results that exceeded the QC acceptance criteria. Analytes and properties with high (greater than 10 percent) overall percentages of positive blanks include fluoride, nitrate, sulfate, alkalinity, total organic carbon, total organic halides, calcium, cobalt, magnesium, sodium, uranium, vanadium, gross beta, iodine-129, strontium-90, technetium-99, tritium, iodomethane, and methylene chloride.

Table 8-6. Total Field Blank Results by Analyte Class

Analyte Class	Results
Anions	630
General Chemistry	391
Metals	4,566
Radiochemistry	627
Semivolatile Organic Compounds	1,066
Volatile Organic Compounds	18,857
Total	**26,137**

Table 8-7. Summary of Field Blank Results Exceeding Quality Control Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits*	Percent Out of Limits
Chloride	Anions	42	4	9.5
Fluoride	Anions	25	3	12
Nitrate	Anions	25	3	12
Sulfate	Anions	25	3	12
Alkalinity	General chemistry	5	1	20
Total Organic Carbon	General chemistry	43	5	11.6
Total Organic Halides	General chemistry	53	6	11.3
Arsenic	Metals	58	4	6.9
Barium	Metals	102	7	6.9
Calcium	Metals	192	53	27.6
Chromium	Metals	42	1	2.4
Cobalt	Metals	12	2	16.7
Copper	Metals	86	5	5.8

Table 8-7. Summary of Field Blank Results Exceeding Quality Control Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits*	Percent Out of Limits
Iron	Metals	134	5	3.7
Magnesium	Metals	190	37	19.5
Manganese	Metals	36	1	2.8
Molybdenum	Metals	24	2	8.3
Potassium	Metals	131	7	5.3
Silver	Metals	74	2	2.7
Sodium	Metals	216	46	21.3
Strontium	Metals	78	5	6.4
Uranium	Metals	8	1	12.5
Vanadium	Metals	16	2	12.5
Zinc	Metals	44	2	4.5
Gross Alpha	Radiochemistry	24	2	8.3
Gross Beta	Radiochemistry	36	4	11.1
Iodine-129	Radiochemistry	5	1	20
Selenium-79	Radiochemistry	1	1	100
Strontium-90	Radiochemistry	7	2	28.6
Technetium-99	Radiochemistry	7	1	14.3
Tritium	Radiochemistry	25	3	12
1,1-Dichloroethene	VOC	229	1	0.44
2-Butanone	VOC	75	1	1.3
4-Methyl-2-pentanone	VOC	19	1	5.3
Acetone	VOC	486	15	3.1
Benzene	VOC	23	1	4.3
Bromomethane	VOC	130	6	4.6
Carbon Tetrachloride	VOC	494	30	6.1
Chloroform	VOC	310	6	1.9
Chloromethane	VOC	130	9	6.9
Iodomethane	VOC	6	2	33.3
Methylene Chloride	VOC	642	281	43.8

Table 8-7. Summary of Field Blank Results Exceeding Quality Control Criteria

Analyte Name	Analyte Class	Total Collected	Total Results Out of Limits*	Percent Out of Limits
Tetrachloroethene	VOC	315	2	0.63
Toluene	VOC	88	1	1.1
Trichloroethene	VOC	69	1	1.4
	Total	**4,782**	**578**	

* Because method detection limits are specific to the laboratory and may change during the reporting period, the limits are presented as a range. However, each result was evaluated according to the method detection limit in effect at the time the sample was analyzed.

VOC = volatile organic compound

1

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Appendix A

200-PO-1 Groundwater Operable Unit Data Quality Evaluation Results

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Contents

Tables

Terms

AES	atomic emission spectrometry
DQA	data quality assessment
ICP	inductively coupled plasma
ID	identification
HEIS	Hanford Environmental Information System
LCS	laboratory control sample
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
OU	operable unit
PQL	practical quantification limit
QC	quality control
RPD	relative percent difference
SVOC	semivolatile organic compound
VOC	volatile organic compound

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A 200-PO-1 Groundwater Operable Unit Data Quality Evaluation Results

A1 Introduction

The data quality evaluation process is an analyte- and sample-specific process that extends the evaluation of data quality assessment (DQA), as described in Chapter 4 in the main text discussion of this report. The main focus of data quality review is to determine the data quality in terms of accomplishing the measurement of quality objectives. Data quality review is generally performed by person(s) independent of the activity that is being evaluated.

A formal data validation effort was not performed for the analytical data included in this DQA report. However, a formal validation report was submitted with the original DQA report submitted for the 200-PO-1 Groundwater Operable Unit (OU) (SGW-41557, *200-PO-1 Groundwater Operable Unit Data Quality Assessment*). Hardcopy data validation reports were not requested from the contracted laboratories. Instead, a low-level data quality review process was performed to evaluate the quality of the data set. This process is similar to the Stage 2A verification and validation described in EPA 540-R-08-005, *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. Each laboratory electronically submits the following sample-related quality control (QC) information for each sample delivery group:

- Dates and times of analysis
- Method blank or preparation blank results
- Surrogate recoveries
- Deuterated monitoring compound recoveries
- Laboratory control sample (LCS) recoveries
- Duplicate analyses relative percent difference (RPD) results
- Matrix spike (MS) and matrix spike duplicate (MSD) recoveries and RPD results

A1.1 Guidance Documents

The following guidance documents were used for the data quality evaluation process:

- EPA/240/R-02/004, *Guidance on Environmental Data Verification and Data Validation* (EPA QA/G-8)
- EPA 540-R-08-005, *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*
- USEPA-540-R-08-01, *National Functional Guidelines for Superfund Organic Methods Data Review*
- USEPA-540-R-10-011, *National Functional Guidelines for Inorganic Superfund Data Review*
- EPA-540-R-11-016, *National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review*

The following sections summarize the data quality evaluation activities that were performed for the groundwater data set included in the DQA for the 200-PO-1 Groundwater OU.

A2 Holding Times

Holding times are defined as the period of time from sample collection to sample analysis or extraction, and the period of time from sample extraction to sample analysis. Holding times are calculated from the date of sample collection, as recorded on the chain-of-custody form, to determine the validity of the results. The following subsections describe the holding-time requirements for the analytical methods evaluated for the 200-BP-5 Groundwater OU DQA report.

Sample results requiring qualification because holding-time requirements were not achieved are summarized in Table A-1. Table A-1 shows the analyte name, the sample identification (ID), the value reported, units, laboratory qualifier, validation qualifier, method name, and the reason why the sample result was qualified.

A2.1 Inorganics

The holding-time requirements for metals are as follows:

- The holding-time requirements for inductively coupled plasma (ICP) and ICP/mass spectrometry metals are analysis within 180 days of sample collection for both soil and water samples.
- Mercury requires analysis within 28 days of sample collection for both soil and water samples. Preservation of soil samples for mercury analysis requires chilling to 4(±2)°C. Preservation of water samples for metals analysis, including mercury, is acidification with nitric acid to pH <2 and chilling to 4(±2)°C.

All groundwater samples were properly preserved.

A2.2 General Chemistry

The holding-time requirements for general chemistry parameters are as follows:

- **All anions except nitrate, nitrite, and phosphate:** Analysis within 28 days of sample collection.
- **Nitrate, nitrite, and phosphate:** Analysis within 48 hours of collection for water samples.
- **Alkalinity:** Analysis within 14 days of sample collection.
- **Cyanide:** Analysis within 14 days of sample collection for water samples.
- **Total carbon and total inorganic carbon:** 28 days for water samples.

Sample preservation for anions and alkalinity requires chilling the groundwater to 4(±2)°C. Cyanide requires preservation of water samples with sodium hydroxide to pH >12 and chilling to 4(±2)°C. Total carbon and total inorganic carbon requires preservation with sulfuric acid to pH <2 (water matrix only) and chilling to 4(±2)°C (water). All groundwater samples were properly preserved.

A2.3 Radionuclides

The maximum holding time for radiochemical analysis is 180 days for both soil and water samples. Sample preservation for water samples requires acid preservation with nitric acid to pH less than 2. There are no specific preservation requirements for radiochemical soil analysis.

All samples were properly preserved and analyzed within the prescribed holding times.

A2.4 Organics

The holding times and preservation requirements for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) are as follows:

- **VOCs (water):** Acidify with hydrochloric acid or sulfuric acid to pH <2, cool to 4(±2)°C, and analyze within 14 days of collection; if samples are not acidified but are cooled to 4(±2)°C, analyze within 7 days of collection.
- **SVOCs, pesticides, polychlorinated biphenyls, and herbicides (water):** Cool to 4(±2)°C, and extract within 7 days of collection. Analysis within 40 days from extraction.
- **Dioxins and furans (water):** Cool to 4(±2)°C; no holding time for extraction or analysis.

All groundwater samples were properly preserved.

A3 Blank Contamination

Section 6.1 in the main text discussion provides a discussion of analytical performance requirements for laboratory blanks. Actions taken on sample results that report laboratory or field blank contamination is provided in Table A-2.

Sample results requiring qualification because of laboratory contamination are summarized in Tables A-3 through A-8 for samples collected between 2008 and 2013. These tables show the analyte name, the sample ID, the value reported, units, laboratory qualifier, validation qualifier, method name, and the reason why the sample result was qualified.

During 2008, 143 metals results were rejected because of the presence of laboratory contamination (sample results were flagged with a "C" laboratory qualifier). In this case, the reported sample results were less than 10 times the preparation blank concentration. However, the laboratory did not assign these results with a "B" laboratory flag, which indicates that the reported concentration is greater than the method detection limit (MDL) but less than the practical quantification limit (PQL). Additionally, the electronic deliverable did not report a PQL. These results are considered unusable because the "B" flag was not appropriately assigned and the PQL was not reported; therefore, the results could not be qualified using the blank actions summarized in Table A-2.

The PQL was not included in the electronic deliverable for a number of sample results reported between 2008 and 2013. When this occurred, the sample results could not be flagged using the blank actions listed above (e.g., report PQL with a "U"). Instead, the reason listed in Tables A-3 through A-8 indicates that the PQL was not provided by the laboratory and the result was flagged with a "U" at the reported concentration (instead of the PQL).

Table A-2. Summary of Blank Actions for Metals, General Chemistry, and Low/Medium Organic Analyses

Blank Type	Blank Result	Sample Result	Action for Samples
Low/Medium Organic Analyses			
Laboratory, storage, field, trip	Detects	Not detected	No qualification
	<PQL	<PQL	Report PQL with a "U"
		≥PQL	Use professional judgment
	>PQL	<PQL	Report PQL with a "U"
		≥PQL and <blank concentration	Report the blank concentration for the sample with a "U" or qualify the data as unusable with an "R"
	=PQL	<PQL	Report PQL with a "U"
		≥PQL	Use professional judgment
	Gross contamination	Detects	Qualify results as unusable with an "R"
Metals and General Chemistry			
Preparation blank	>PQL	≥MDL but ≤PQL	Report PQL with a "U"
		≥PQL and <10 times the blank concentration	Use professional judgment to qualify results as unusable with an "R" or estimated high with a "J+"
		>10 times the blank result	No qualification
	>MDL but ≤PQL	Not detected	No qualification
		≥MDL but ≤PQL	Report PQL with a "U"
		>PQL	Use professional judgment

Note: The PQL is designated as the required detection limit in the HEIS database. Additionally, the MDL is designated as the reporting limit in the HEIS database.

HEIS = Hanford Environmental Information System
MDL = method detection limit
PQL = practical quantitation limit

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A4 Laboratory Precision and Accuracy

Sections 6.2 and 6.3 in the main text discussion discuss laboratory precision and accuracy analytical performance requirements. Laboratory precision and accuracy are evaluated by the performance of LCSs, MSs/MSDs, and surrogate spike compounds.

Precision is the degree of agreement among repeated measurements of the same characteristic. It may be determined by calculating the standard deviation, or RPD, among samples taken from the same place at the same time. Accuracy measures how close the results are to a true or expected value, which can be determined by comparing the analysis of a standard or reference sample to its actual value. Three types of QC are used to assess accuracy.

A4.1 Laboratory Control Samples

The LCS serves as to monitor of the overall performance of each step during the analysis, including sample preparation. Actions taken on sample results that report LCS recoveries outside of QC limits are provided in Table A-9. The LCSs are not reported for organic analyses.

Table A-9. Summary of LCS Actions for Metals

LCS Criteria	Action
Metals ICP/AES Analysis	
Aqueous/water: All metals except antimony and silver –%R 40-69 **Silver and antimony:** %R 20-49	Qualify results that are ≥MDL as estimated low (J-) or qualify nondetects as estimated (UJ)
Aqueous/water: All metals except antimony and silver – %R >130% **Silver and antimony:** %R >150	Qualify results that are ≥MDL as estimated high (J+)
Aqueous/water: All metals except antimony and silver – %R <40% **Silver and antimony:** %R <20	Qualify results that are ≥MDL as estimated low (J-) or qualify nondetects as unusable (R)
Aqueous/water: All metals except antimony and silver – %R > 150 **Silver and antimony:** %R >170	Qualify all results as unusable (R)
Metals ICP/Mass Spectrometry Analysis	
Aqueous/water: %R 40-69	Qualify results that are ≥MDL as estimated low (J-) or qualify nondetects as estimated (UJ)
Aqueous/water: %R >130%	Qualify results that are ≥MDL as estimated high (J+)
Aqueous/water: %R <40%	Qualify results that are ≥MDL as estimated low (J-) or qualify nondetects as unusable (R)
Aqueous/water: %R >150	Qualify all results as unusable (R)

AES = atomic emission spectrometry
ICP = inductively coupled plasma
LCS = laboratory control sample
MDL = method detection limit

Sample results requiring qualification due to LCS results are summarized in Tables A-10 through A-15 for samples collected between 2008 and 2013. These tables show the analyte name, sample ID, value reported, units, laboratory qualifier, validation qualifier, method name, and reason why the sample result was qualified. Although guidance is not published for the qualification of radiological analyses, the actions listed for ICP/mass spectrometry results were applied to radiological results.

A4.2 Matrix Spike/Matrix Spike Duplicate Samples

Laboratory spike recovery is also used as a measure of laboratory accuracy and precision. Actions taken on sample results that report MS/MSD recoveries or RPD results outside of QC limits are provided in Table A-16.

Table A-16. Summary of MS/MSD Actions for Metals and Cyanide

MS/MSD Criteria	Action
Metals ICP/AES, ICP/Mass Spectrometry, Mercury, and Cyanide Analysis	
Matrix spike %R <30% No post-digestion spike performed (e.g., not required for Ag)	Qualify results that are ≥MDL as estimated low (J-) and affected nondetects as unusable (R)
Matrix spike %R 30-74% No post-digestion spike performed (e.g., not required for Ag)	Qualify results that are ≥MDL as estimated low (J-) and nondetects as estimated (UJ)
Matrix spike %R >125% No post-digestion spike performed (e.g., not required for Ag)	Qualify results that are ≥MDL as estimated high (J+) and nondetects are not qualified
Both parent and duplicate sample >5 times the PQL and the RPD >20%	Qualify results ≥MDL that professional judgment determines to be affected as estimated (J) and nondetects as estimated (UJ)
Parent or duplicate sample ≤5 times the PQL (including nondetects) and the absolute difference between parent and duplicate >PQL	Qualify results ≥MDL that professional judgment determines to be affected as estimated (J) and nondetects as estimated (UJ)

AES = atomic emission spectrometry
ICP = inductively coupled plasma
MDL = method detection limit
MSD = matrix spike duplicate
PQL = practical quantitation limit
RPD = relative percent difference

Sample results requiring qualification because MS/MSD results are outside of QC limits are summarized in Tables A-17 through A-21 for samples collected between 2008 and 2013. These tables show the analyte name, the sample ID, the value reported, units, laboratory qualifier, validation qualifier, method name, and the reason why the sample result was qualified. Although guidance is not published for the qualification of radiological analyses, the actions listed for metals results were applied to radiological results. No samples collected during 2011 required qualification as a result of MS/MSD recoveries or RPD results.

Organic sample results were not qualified based on MS and MSD data alone. The data reviewer may use MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. However, no additional qualification was performed.

A4.3 Surrogate Spike Recovery

Laboratory spike recovery is also used as a measure of laboratory accuracy and precision. Actions taken on sample results that report surrogate spike recoveries outside QC limits are provided in Table A-22. The LCSs are not reported for organic analyses. Surrogate spike recoveries are not reported with radiological, metal, or general chemistry analyses.

Sample results requiring qualification because surrogate spike recoveries are outside QC limits are summarized in Tables A-23 through A-26 for samples collected between 2008 and 2013. These tables show the analyte name, the sample ID, the value reported, units, laboratory qualifier, validation qualifier, method name, and the reason why the sample result was qualified. No samples collected during 2011 or 2013 required qualification as a result of surrogate spike recoveries.

Table A-22. Summary of Surrogate Spike Recovery Actions for Organic Analyses

MS/MSD Criteria	Action
Low/Medium Volatiles Analyses	
%R ≥ upper laboratory-specific acceptance limit	Qualify results that are ≥MDL as estimated (J) and nondetects are not qualified
%R < lower laboratory-specific acceptance limit	Qualify results that are ≥MDL as estimated (J) and nondetects as estimated (UJ)
%R <20	Qualify results that are ≥MDL as estimated (J) and affected nondetects as unusable (R)
Semivolatile Analyses	
%R ≥ upper laboratory-specific acceptance limit	Qualify results that are ≥MDL as estimated (J) and nondetects are not qualified
%R < lower laboratory-specific acceptance limit	Qualify results that are ≥MDL as estimated (J) and nondetects as estimated (UJ) or as unusable (R)
Pesticide and Aroclor Analyses	
%R- >200	Qualify results that are ≥MDL as estimated (J) and nondetects use professional judgment
%R- 150-200	Qualify results that are ≥MDL as estimated (J) and nondetects are not qualified
%R- 30-150	No qualification required
%R- 10-30	Qualify results that are ≥MDL as estimated (J) and affected nondetects as unusable (R)

MDL = method detection limit
MS = matrix spike
MSD = matrix spike duplicate

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Table A-1. Summary of Sample Results Qualified Because of Holding Times Exceedances

Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,1,1-Trichloroethane	1.5	ug/L	J	J	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,1,1-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,1,1-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,1,1-Trichloroethane	1.4	ug/L	J	J	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,1,1-Trichloroethane	1.4	ug/L	J	J	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,1,1-Trichloroethane	1.5	ug/L	J	J	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,1,1-Trichloroethane	1.3	ug/L	J	J	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,1,2-Trichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,1-Dichloroethane	1	ug/L	UTX	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,1-Dichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	1,2,4-Trichlorobenzene	0.7	ug/L	UTX	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,2-Dichloroethane	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1,4-Dichlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLB7	4/17/2012	4/26/2012	9	7	1,4-Dioxane	1	ug/L	U	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	1-Butanol	100	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,3,4,6-Tetrachlorophenol	2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,3,4,6-Tetrachlorophenol	2	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,4,5-Trichlorophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,4,5-Trichlorophenol	2.2	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,4,6-Trichlorophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,4,6-Trichlorophenol	2.2	ug/L	U	R	> 2X holding time requirement

Table A-1. Summary of Sample Results Qualified Because of Holding Times Exceedances

Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,4-Dichlorophenol	2.1	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,4-Dichlorophenol	2.1	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2,4-Dichlorophenol	0.5	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,4-Dimethylphenol	2.1	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,4-Dimethylphenol	2.1	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,4-Dinitrophenol	2.4	ug/L	UN	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,4-Dinitrophenol	2.4	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2,4-Dinitrotoluene	0.5	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2,6-Dichlorophenol	2.1	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2,6-Dichlorophenol	2.1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	2-Butanone	1	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2-Chlorophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2-Chlorophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2-Chlorophenol	0.5	ug/L	UT	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2-Methylphenol (cresol, o-)	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2-Methylphenol (cresol, o-)	2.2	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2-Methylphenol (cresol, o-)	0.8	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	2-Nitrophenol	2.3	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	2-Nitrophenol	2.3	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2-Nitrophenol	0.5	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	2-Picoline	1	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	3+4 Methylphenol (cresol, m+p)	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	3+4 Methylphenol (cresol, m+p)	2.2	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	3+4 Methylphenol (cresol, m+p)	0.6	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	4,6-Dinitro-2-methylphenol	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	4,6-Dinitro-2-methylphenol	2.2	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	4-Chloro-3-methylphenol	2.4	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	4-Chloro-3-methylphenol	2.4	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	4-Chloro-3-methylphenol	0.5	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	4-Methyl-2-pentanone	1	ug/L	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	4-Nitrophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	4-Nitrophenol	2.2	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	4-Nitrophenol	0.6	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Acenaphthene	0.5	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B1WKK3	8/29/2008	11/12/2008	75	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Acetone	1.4	ug/L	J	J	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
699-25-34D	B1WK06	8/26/2008	11/12/2008	78	7	Acetone	1	ug/L	U	R	> 2X holding time requirement

Table A-1. Summary of Sample Results Qualified Because of Holding Times Exceedances

Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Acetone	1	ug/L	U	R	> 2X holding time requirement
299-E25-236	B2N3C8	12/12/2012	12/26/2012	14	7	Aldrin	0.0095	ug/L	UO	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Benzene	1	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Benzothiazole	0.5	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Bis(2-ethylhexyl) phthalate	12	ug/L		J-	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/28/2008	55	7	Bromide	0.25	mg/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Carbon disulfide	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Carbon tetrachloride	1	ug/L	U	R	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/27/2008	54	7	Chloride	16.4	mg/L	D	J-	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Chlorobenzene	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Chloroform	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Chloroform	1	ug/L	J	J	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	cis-1,2-Dichloroethylene	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B269D9	7/19/2010	9/17/2010	60	7	Coliform Bacteria	1	Col/100mL	U	R	> 2X holding time requirement
699-24-34B	B1WKL4	9/22/2008	10/14/2008	22	7	Coliform Bacteria	1	Col/100mL	U	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	Dinoseb(2-secButyl-4,6-dinitrophenol)	2.4	ug/L	UN	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	Dinoseb(2-secButyl-4,6-dinitrophenol)	2.4	ug/L	U	R	> 2X holding time requirement
299-E25-236	B2N337	12/12/2012	12/26/2012	14	7	Endrin aldehyde	0.0095	ug/L	U	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement

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Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Ethyl cyanide	2	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Ethylbenzene	1	ug/L	U	R	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/28/2008	55	28	Fluoride	0.25	mg/L	U	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Methylene chloride	1	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Naphthalene	0.5	ug/L	U	R	> 2X holding time requirement
299-E13-5	B1TWR7	6/4/2008	6/6/2008	2	2	Nitrate	10.7	mg/L		J	< 2X holding time requirement
299-E17-23	B1X0T5	9/2/2008	9/6/2008	4	2	Nitrate	22.8	mg/L	D	J	< 2X holding time requirement
299-E17-26	B1X0V3	9/2/2008	9/6/2008	4	2	Nitrate	29.5	mg/L	D	J	< 2X holding time requirement
299-E24-21	B1X0W1	9/2/2008	9/9/2008	7	2	Nitrate	46.3	mg/L	D	J-	> 2X holding time requirement
299-E24-22	B1WYW6	9/2/2008	9/9/2008	7	2	Nitrate	12.9	mg/L	D	J-	> 2X holding time requirement
299-E25-18	B1TWP9	4/28/2008	5/2/2008	4	2	Nitrate	8.74	mg/L		J	< 2X holding time requirement
299-E25-2	B1X001	9/2/2008	9/9/2008	7	2	Nitrate	16.5	mg/L	D	J-	> 2X holding time requirement
299-E25-40	B1X013	9/2/2008	9/13/2008	11	2	Nitrate	6.95	mg/L		J-	> 2X holding time requirement
299-E25-41	B1X025	9/2/2008	9/9/2008	7	2	Nitrate	26.6	mg/L	D	J-	> 2X holding time requirement
299-E25-93	B1X037	9/2/2008	9/9/2008	7	2	Nitrate	53.5	mg/L	D	J-	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/27/2008	54	2	Nitrate	28.2	mg/L	D	J-	> 2X holding time requirement
699-26-34A	B1T4M5	5/16/2008	5/22/2008	6	2	Nitrate	18.8	mg/L	D	J-	> 2X holding time requirement
299-E13-5	B1TWR7	6/4/2008	6/6/2008	2	2	Nitrite	0.25	mg/L	U	J	< 2X holding time requirement
299-E17-23	B1X0T5	9/2/2008	9/12/2008	10	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E17-26	B1X0V3	9/2/2008	9/12/2008	10	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E24-21	B1X0W1	9/2/2008	9/12/2008	10	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E24-22	B1WYW6	9/2/2008	9/12/2008	10	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E25-18	B1TWP9	4/28/2008	5/2/2008	4	2	Nitrite	2.5	mg/L	UD	J	< 2X holding time requirement
299-E25-2	B1X001	9/2/2008	9/13/2008	11	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E25-40	B1X013	9/2/2008	9/13/2008	11	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E25-41	B1X025	9/2/2008	9/13/2008	11	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E25-93	B1X037	9/2/2008	9/15/2008	13	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/28/2008	55	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
699-26-34A	B1T4M5	5/16/2008	5/22/2008	6	2	Nitrite	0.25	mg/L	U	R	> 2X holding time requirement
699-S19-E13	B22YX7	3/9/2010	4/6/2010	28	2	Nitrite	0.04	mg/L	U	R	> 2X holding time requirement
699-S6-E4A	B1TKC3	6/4/2008	6/6/2008	2	2	Nitrite	0.25	mg/L	U	J	< 2X holding time requirement
299-E17-14	B1Y744	1/14/2009	1/21/2009	7	2	Nitrogen in Nitrate	27.7	mg/L	D	J-	> 2X holding time requirement
299-E24-16	B2HL18	11/9/2011	11/13/2011	4	2	Nitrogen in Nitrate	15.9	mg/L	D	J	< 2X holding time requirement
299-E24-20	B1TL77	3/12/2008	3/20/2008	8	2	Nitrogen in Nitrate	13	mg/L	D	J-	> 2X holding time requirement
299-E25-20	B2B457	3/30/2011	4/4/2011	5	2	Nitrogen in Nitrate	13	ug/mL	D	J-	> 2X holding time requirement
299-E25-32P	B2HF76	11/10/2011	11/14/2011	4	2	Nitrogen in Nitrate	1.3	mg/L	D	J	< 2X holding time requirement
699-14-38	B28JT9	12/17/2010	12/20/2010	3	2	Nitrogen in Nitrate	4.26	ug/mL	D	J	< 2X holding time requirement
699-26-35A	B2HH64	11/3/2011	11/5/2011	2	2	Nitrogen in Nitrate	4.2	mg/L	D	J	< 2X holding time requirement
699-2-6A	B2HLK1	11/28/2011	12/2/2011	4	2	Nitrogen in Nitrate	6.1	mg/L	D	J	< 2X holding time requirement
699-2-7	B2HLK3	11/28/2011	12/2/2011	4	2	Nitrogen in Nitrate	7.4	mg/L	D	J	< 2X holding time requirement
699-32-22A	B2HLK7	12/1/2011	12/4/2011	3	2	Nitrogen in Nitrate	4.7	mg/L	D	J	< 2X holding time requirement

Table A-1. Summary of Sample Results Qualified Because of Holding Times Exceedances

Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
699-43-45	B2HH72	11/9/2011	11/13/2011	4	2	Nitrogen in Nitrate	1.2	mg/L	D	J	< 2X holding time requirement
699-44-39B	B2F7K8	11/9/2011	11/12/2011	3	2	Nitrogen in Nitrate	0.83	mg/L		J	< 2X holding time requirement
699-45-42	B2HLL6	11/17/2011	11/20/2011	3	2	Nitrogen in Nitrate	1	mg/L	D	J	< 2X holding time requirement
699-52-19	B23JB1	3/21/2010	3/24/2010	3	2	Nitrogen in Nitrate	1.31	ug/mL	DX	J	< 2X holding time requirement
699-S6-E4A	B2HM24	12/1/2011	12/4/2011	3	2	Nitrogen in Nitrate	6.4	mg/L	D	J	< 2X holding time requirement
299-E24-16	B2HL18	11/9/2011	11/11/2011	2	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
299-E25-32P	B2HF76	11/10/2011	11/13/2011	3	2	Nitrogen in Nitrite	0.003	mg/L	UN	J	< 2X holding time requirement
699-14-38	B28JT9	12/17/2010	12/20/2010	3	2	Nitrogen in Nitrite	0.036	ug/mL	UD	J	< 2X holding time requirement
699-24-34A	B2HH27	11/7/2011	11/9/2011	2	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
699-2-6A	B2HLK1	11/28/2011	12/1/2011	3	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
699-2-7	B2HLK3	11/28/2011	11/30/2011	2	2	Nitrogen in Nitrite	0.027	mg/L		J	< 2X holding time requirement
699-43-45	B2HH72	11/9/2011	11/11/2011	2	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
699-44-39B	B2F7K8	11/9/2011	11/12/2011	3	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
699-45-42	B2HLL6	11/17/2011	11/20/2011	3	2	Nitrogen in Nitrite	0.003	mg/L	U	J	< 2X holding time requirement
699-52-19	B23JB1	3/21/2010	3/24/2010	3	2	Nitrogen in Nitrite	0.036	ug/mL	UDX	J	< 2X holding time requirement
699-S6-E4A	B1WYL5	10/21/2008	2/12/2009	114	2	Nitrogen in Nitrite	0.026	ug/mL	UD	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	n-Nitrosodi-n-dipropylamine	0.5	ug/L	U	R	> 2X holding time requirement
699-25-34A	B1YXN8	3/16/2009	4/15/2009	30		Oil and grease	2.1	mg/L	UN	R	> 2X holding time requirement
699-25-34B	B1YXP4	3/16/2009	4/15/2009	30		Oil and grease	2.1	mg/L	UN	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	Pentachlorophenol	2.4	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	Pentachlorophenol	2.4	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Pentachlorophenol	0.5	ug/L	UT	R	> 2X holding time requirement
299-E24-16	B24PL0	4/25/2010	5/10/2010	15	7	Phenol	2.3	ug/L	U	R	> 2X holding time requirement
699-26-35C	B23BX2	1/19/2010	2/3/2010	15	7	Phenol	2.3	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Phenol	0.9	ug/L	U	R	> 2X holding time requirement
299-E17-23	B1X0T5	9/2/2008	9/12/2008	10	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E17-26	B1X0V3	9/2/2008	9/12/2008	10	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E24-21	B1X0W1	9/2/2008	9/12/2008	10	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E24-22	B1RHJ9	1/3/2008	1/8/2008	5	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E24-22	B1WYW6	9/2/2008	9/12/2008	10	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E25-2	B1X001	9/2/2008	9/13/2008	11	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E25-40	B1X013	9/2/2008	9/13/2008	11	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E25-41	B1X025	9/2/2008	9/13/2008	11	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E25-93	B1X037	9/2/2008	9/15/2008	13	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/28/2008	55	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
699-26-34A	B1T4M5	5/16/2008	5/22/2008	6	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
699-S6-E4A	B1TKC3	6/4/2008	6/6/2008	2	28	Phosphate	0.25	mg/L	U	J	< 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Pyrene	0.5	ug/L	U	R	> 2X holding time requirement
299-E25-94	B1X3K9	9/3/2008	10/28/2008	55	28	Sulfate	115	mg/L	D	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Tetrachloroethene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Tetrachloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Tetrachloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Tetrachloroethene	1.6	ug/L	J	J	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Tetrachloroethene	1.7	ug/L	J	J	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Tetrachloroethene	1.4	ug/L	J	J	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Tetrachloroethene	1.3	ug/L	J	J	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Tetrahydrofuran	2	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Toluene	1.4	ug/L	J	J	> 2X holding time requirement

Table A-1. Summary of Sample Results Qualified Because of Holding Times Exceedances

Well Name	Sample ID	Collection Date	Analysis Date	# of Days to Analysis	Holding Time Requirement (days)	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	Reason
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Toluene	1	ug/L	U	R	> 2X holding time requirement
299-E17-25	B20449	5/1/2009	6/5/2009	35	28	Total organic carbon	0.307	mg/L	B	J	< 2X holding time requirement
299-E17-26	B1T4V0	2/27/2008	4/16/2008	49	28	Total organic carbon	0.454	mg/L		J	< 2X holding time requirement
299-E24-24	B20461	5/1/2009	6/5/2009	35	28	Total organic carbon	0.3	mg/L	U	J	< 2X holding time requirement
299-E25-32P	B24PP2	4/28/2010	5/29/2010	31	28	Total organic carbon	0.3	mg/L	U	J	< 2X holding time requirement
299-E25-34	B24PR2	4/26/2010	5/26/2010	30	28	Total organic carbon	0.3	mg/L	U	J	< 2X holding time requirement
699-23-34A	B1T612	2/25/2008	4/16/2008	51	28	Total organic carbon	1.05	mg/L	X	J	< 2X holding time requirement
699-23-34B	B1T617	2/25/2008	4/16/2008	51	28	Total organic carbon	22.6	mg/L		J	< 2X holding time requirement
699-24-33	B1T622	2/25/2008	4/16/2008	51	28	Total organic carbon	38.3	mg/L	X	J	< 2X holding time requirement
699-24-34A	B1T631	2/25/2008	4/16/2008	51	28	Total organic carbon	21	mg/L		J	< 2X holding time requirement
699-24-34B	B1T636	2/25/2008	4/16/2008	51	28	Total organic carbon	2.91	mg/L	X	J	< 2X holding time requirement
699-24-34C	B1T641	2/26/2008	4/16/2008	50	28	Total organic carbon	11	mg/L		J	< 2X holding time requirement
699-24-35	B1T646	2/26/2008	4/16/2008	50	28	Total organic carbon	12.8	mg/L		J	< 2X holding time requirement
699-25-33A	B1T4D2	2/26/2008	4/16/2008	50	28	Total organic carbon	7.29	mg/L		J	< 2X holding time requirement
699-25-34A	B1T4F6	2/26/2008	4/16/2008	50	28	Total organic carbon	1.21	mg/L		J	< 2X holding time requirement
699-25-34B	B1T4H4	2/26/2008	4/16/2008	50	28	Total organic carbon	0.633	mg/L		J	< 2X holding time requirement
699-26-33	B1T4L4	3/6/2008	4/25/2008	50	28	Total organic carbon	0.439	mg/L		J	< 2X holding time requirement
699-26-35A	B1T4P3	3/6/2008	4/25/2008	50	28	Total organic carbon	0.386	mg/L		J	< 2X holding time requirement
299-E17-19	B2HRN4	10/6/2011	11/18/2011	43	28	Total organic halides	8.9	ug/L	B	J	< 2X holding time requirement
299-E25-35	B2HRP1	10/5/2011	11/16/2011	42	28	Total organic halides	5.6	ug/L	B	J	< 2X holding time requirement
299-E25-47	B2HRP6	10/5/2011	11/15/2011	41	28	Total organic halides	3.8	ug/L	JB	J	< 2X holding time requirement
299-E25-48	B2HF90	10/5/2011	11/16/2011	42	28	Total organic halides	9.9	ug/L	B	J	< 2X holding time requirement
299-E26-13	B2HRR1	10/5/2011	11/17/2011	43	28	Total organic halides	5.8	ug/L	B	J	< 2X holding time requirement
699-14-38	B27WM1	12/17/2010	12/30/2010	13	7	Total petroleum hydrocarbons - diesel range	70	ug/L	U	J	< 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	trans-1,2-Dichloroethylene	1	ug/L	UXT	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	trans-1,2-Dichloroethylene	1	ug/L	UXT	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	trans-1,2-Dichloroethylene	1	ug/L	UTX	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	trans-1,2-Dichloroethylene	1	ug/L	UXT	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	trans-1,2-Dichloroethylene	1	ug/L	UTX	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	trans-1,2-Dichloroethylene	1	ug/L	UTX	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	trans-1,2-Dichloroethylene	1	ug/L	UTX	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Tributyl phosphate	0.5	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Trichloroethene	1	ug/L	U	R	> 2X holding time requirement
699-S6-E4K	B230K5	2/16/2010	3/16/2010	28	7	Tris-2-chloroethyl phosphate	0.5	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Vinyl chloride	1	ug/L	U	R	> 2X holding time requirement
699-22-35	B2KL33	4/16/2012	5/4/2012	18	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement
699-23-34B	B2KL53	4/16/2012	5/8/2012	22	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement
699-24-33	B2KL63	4/16/2012	5/4/2012	18	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement
699-24-34A	B2KL73	4/16/2012	5/4/2012	18	7	Xylenes (total)	1.4	ug/L	J	J	> 2X holding time requirement
699-24-34B	B2KL87	4/16/2012	5/4/2012	18	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement
699-24-35	B2KLB0	4/17/2012	5/4/2012	17	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement
699-26-35A	B2KLC0	4/17/2012	5/4/2012	17	7	Xylenes (total)	1	ug/L	U	R	> 2X holding time requirement

Table A-3. Summary of 2008 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1V8C4	Acetone	7.3		ug/L	B	UJR	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (270 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1WKH4	Acetone	27		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B1WKH4	Acetone	27		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1WKH9	Acetone	37		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly greater than 2X the MB contamination.
B1WKH9	Acetone	37		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1WKJ8	Acetone	28		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B1WKJ8	Acetone	28		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1WKK8	Acetone	29		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B1WKK8	Acetone	29		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1T4T0	Antimony	68.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4T1	Antimony	62.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4T7	Antimony	39.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V2	Antimony	45.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V3	Antimony	50.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V5	Antimony	47.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V8	Antimony	43.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4W1	Antimony	82		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1W521	Bis(2-ethylhexyl) phthal	11		ug/L	B	R	8270_SVOA_GCMS	Rejected result; professional judgement based on lack of trend.
B1W593	Carbon disulfide	0.21	1	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W4P7	Chloromethane	0.12	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W503	Chloromethane	0.83	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W563	Chloromethane	0.73	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W599	Chloromethane	0.79	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W5C1	Chloromethane	0.82	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W5D9	Chloromethane	0.73	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1W5J9	Chloromethane	0.11	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1RTP5	Chromium	11.5		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RTP6	Chromium	11.7		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T4D6	Chromium	12.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4D7	Chromium	7.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4F8	Chromium	6.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H8	Chromium	14.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H9	Chromium	14.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T617	Chromium	6.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T622	Chromium	8.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T628	Chromium	4.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T631	Chromium	12.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T636	Chromium	26.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T640	Chromium	10.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T641	Chromium	8.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T645	Chromium	5.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T646	Chromium	15.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TL76	Chromium	11.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TL77	Chromium	12.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TL86	Chromium	4.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TLC4	Chromium	5.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TLF4	Chromium	15.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TLH4	Chromium	5.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TLJ3	Chromium	4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM21	Chromium	6.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM22	Chromium	10.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM24	Chromium	23.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM25	Chromium	23.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM27	Chromium	13		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM28	Chromium	15.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM33	Chromium	8.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TM34	Chromium	15.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCM7	Copper	9.4		ug/L	C	UJ	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RCR1	Copper	4.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHK9	Copper	7.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTM2	Copper	5.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTP5	Copper	6.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTT4	Copper	6.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTT5	Copper	5.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RVK6	Copper	4.9		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RVK6	Copper	4.9		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RVM6	Copper	4		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RVM6	Copper	4		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T403	Copper	4.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX07	Copper	4.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX08	Copper	30.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX11	Copper	8.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX12	Copper	8.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX15	Copper	12.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TX16	Copper	15.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V898	Copper	4.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B9	Copper	4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCL8	Iron	28.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCL9	Iron	142		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTM1	Iron	12.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTM2	Iron	130		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTP5	Iron	19.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTP6	Iron	85.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T409	Iron	19.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4D6	Iron	23.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4D7	Iron	112		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required

Table A-3. Summary of 2008 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1T4F7	Iron	27.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4F8	Iron	46.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H8	Iron	10.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H9	Iron	30.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4J9	Iron	20.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4K0	Iron	23.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4K4	Iron	33		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4N6	Iron	25.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4P7	Iron	20.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4R8	Iron	20		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4T9	Iron	19.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V0	Iron	34.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V2	Iron	17.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V4	Iron	15.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4V5	Iron	140		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T617	Iron	66.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T622	Iron	152		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T628	Iron	162		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T631	Iron	134		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T636	Iron	290		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T640	Iron	34.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T641	Iron	124		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T645	Iron	19.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T646	Iron	87.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TKL2	Iron	49.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TKM0	Iron	85.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V888	Iron	20.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V889	Iron	47.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V898	Iron	25.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V899	Iron	85.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B3	Iron	23.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B4	Iron	254		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1V8B8	Iron	39.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B9	Iron	263		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1W546	Iron	54.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WYY9	Iron	128		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X011	Iron	132		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X023	Iron	121		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X6X0	Iron	99.4		ug/L	BC	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X7P6	Iron	28.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X7P7	Iron	42.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X7T9	Iron	28.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X867	Iron	125		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1RCP2	Manganese	5.2	15	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1RCP6	Manganese	6.2	15	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1RDW5	Manganese	5.6	15	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1TKK5	Manganese	4.3	15	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1TWT0	Manganese	5.8	15	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1VMJ8	Methylene chloride	6.3		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1VML0	Methylene chloride	9		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (37 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1VML2	Methylene chloride	6.8		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B1WK06	Methylene chloride	1		ug/L	BJ	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WK26	Methylene chloride	1.2		ug/L	BJ	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WK36	Methylene chloride	1.4		ug/L	BJ	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WKH4	Methylene chloride	1.9		ug/L	J	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WKH9	Methylene chloride	1.6		ug/L	J	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WKJ8	Methylene chloride	1.7		ug/L	J	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WKK3	Methylene chloride	88		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (620 ug/L) which is greater than acceptance criteria. Sample results are less than the MB contamination.
B1WKK8	Methylene chloride	1.6		ug/L	J	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RCM6	Nickel	5.9		ug/L	C	UJ	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RCM7	Nickel	25.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCV0	Nickel	4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTN1	Nickel	5.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T403	Nickel	6.6		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T4K4	Nickel	4.7		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T4P7	Nickel	5.8		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T4R7	Nickel	4.4		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1T4R8	Nickel	7.1		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1VMK4	Nickel	4.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT0	Nickel	5.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT2	Nickel	7.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT8	Nickel	5.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT9	Nickel	5.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X898	Nickel	7.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X8B2	Nickel	6.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WYT3	Potassium	6240		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1WYT4	Potassium	4910	5000	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1WYX6	Potassium	10700		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1WYX7	Potassium	9970		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0R8	Potassium	9030		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0R9	Potassium	9800		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0T6	Potassium	7400		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0T7	Potassium	4880	5000	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1X0V4	Potassium	7370		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0W2	Potassium	8770		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1X0W3	Potassium	8930		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result

Table A-3. Summary of 2008 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1RCR0	Silver	6.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCR5	Silver	7.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHL0	Silver	6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTL7	Silver	6.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTL8	Silver	7.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RVJ8	Silver	7.2		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RVJ8	Silver	7.2		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1TWW3	Silver	8.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1VMK3	Silver	9.5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1VMK4	Silver	5.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1VML4	Silver	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1W559	Silver	5.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1W595	Silver	5.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1W5B1	Silver	5.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT0	Silver	5.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJT9	Silver	11.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WJV2	Silver	11.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1WKK8	Silver	7.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X6W9	Silver	5.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X864	Silver	11.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X865	Silver	5.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X897	Silver	14.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X898	Silver	18.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X8B1	Silver	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1X8B2	Silver	5.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1XF17	Silver	12.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1XF25	Silver	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1W288	Total organic halides	4.4	5	ug/L	BC	U	9020_TOX	Flagged with a U; ≥ MDL but ≤ PQL
B1RCR0	Vanadium	7.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCR1	Vanadium	11.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCR4	Vanadium	7.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RCR5	Vanadium	13.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHJ7	Vanadium	22.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHJ8	Vanadium	30.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHK9	Vanadium	8.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RHL0	Vanadium	20.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTL7	Vanadium	26.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTL8	Vanadium	26.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4D6	Vanadium	8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4D7	Vanadium	11.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4F7	Vanadium	15.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4F8	Vanadium	19.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H8	Vanadium	20.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T4H9	Vanadium	12.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T606	Vanadium	14.3		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T607	Vanadium	15.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T611	Vanadium	21.1		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T612	Vanadium	22.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T616	Vanadium	21.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T617	Vanadium	13.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T621	Vanadium	20.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T622	Vanadium	15		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T627	Vanadium	16.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T628	Vanadium	9.2		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T630	Vanadium	15.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T631	Vanadium	9.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T635	Vanadium	17.5		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T636	Vanadium	7.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T640	Vanadium	15.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T641	Vanadium	17.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T645	Vanadium	14.7		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1T646	Vanadium	20		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1TWW3	Vanadium	11		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1TWW4	Vanadium	11.7		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1TWW7	Vanadium	23.3		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1TWW8	Vanadium	23.1		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RCT9	Zinc	4.4		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RCV0	Zinc	15.1		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RTM1	Zinc	7.9		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTM2	Zinc	8.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1RTN1	Zinc	6.9		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1RTP6	Zinc	12.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V0N3	Zinc	7.5		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1V0P1	Zinc	4.2		ug/L		U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1V893	Zinc	8.8		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V894	Zinc	10		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B8	Zinc	12.4		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1V8B9	Zinc	17.6		ug/L	C	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B1WYY8	Zinc	6.3	20	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL

Table A-4. Summary of 2009 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1YK06	Carbon tetrachloride	1.6	5	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1YK13	Carbon tetrachloride	2	5	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B1Y7F5	Copper	7.6		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B20Y89	Copper	4.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B20Y90	Copper	4.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1Y6N8	Iron	143		ug/L		J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B1Y6R4	Iron	82.1	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1Y6T8	Iron	28.4	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1Y6T9	Iron	28.7	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1Y6Y6	Iron	34.5	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1Y711	Iron	53	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1Y725	Iron	41.2	120	ug/L	B	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL
B1YV26	Iron	79		ug/L	BC	UJ	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YV27	Iron	68.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YV30	Iron	73.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YV31	Iron	73.2		ug/L	BC	UJ	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YV33	Iron	26.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YW59	Iron	20.5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YW69	Iron	21.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YXP5	Iron	27.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1YXP6	Iron	24.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B20455	Iron	164		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B20461	Iron	19.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B20Y90	Iron	42.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210P2	Iron	20.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210P6	Iron	36.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210P9	Iron	25		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210R0	Iron	28.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210R7	Iron	26.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210R8	Iron	53.5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210T1	Iron	71.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210T2	Iron	74.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210T5	Iron	22.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210T6	Iron	44.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210T9	Iron	56.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210V0	Iron	52.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B210V3	Iron	22.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224C6	Iron	20.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224C7	Iron	38.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224D5	Iron	35.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224D6	Iron	37.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224F0	Iron	23.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224F1	Iron	56.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224J0	Iron	29.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224J5	Iron	42.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224J6	Iron	42.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224K1	Iron	72		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc

Table A-4. Summary of 2009 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B224K2	Iron	34.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224K4	Iron	56		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B224K5	Iron	30.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B20452	Nickel	4		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B205W1	Nickel	15.3		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B205W2	Nickel	16.1		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B205Y0	Nickel	6.8		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B205Y1	Nickel	6.1		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B1Y6N7	Silver	7	25	ug/L	BC	U	6010_METALS_ICP	Flagged with a U; ≥ MDL but ≤ PQL

Table A-5. Summary of 2010 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B23FK2	Acetone	180		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B26MD6	Acetone	0.4	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B24LJ8	Aluminum	169		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26575	Aluminum	271		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B265L3	Aluminum	246		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B24LJ7	Arsenic	70		ug/L	BC	R	6010_METALS_ICP	Rejected result; gross contamination
B26751	Arsenic	2.2		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26752	Arsenic	2.38		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26755	Arsenic	5.99		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26756	Arsenic	6.52		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26759	Arsenic	7.04		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26760	Arsenic	6.68		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26763	Arsenic	3.61		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26764	Arsenic	4.28		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK0	Arsenic	5.83		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK1	Arsenic	7.2		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK0	Barium	50.5		ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B26MK1	Barium	23.3		ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B24M43	Bismuth	24.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26634	Bismuth	31		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25M49	Boron	24		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25M50	Boron	35		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265N7	Boron	23		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26544	Bromomethane	0.39	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26567	Bromomethane	0.42	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MD1	Bromomethane	0.43	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MD6	Bromomethane	0.34	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MF1	Bromomethane	0.34	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WL9	Bromomethane	0.49	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WN1	Bromomethane	0.47	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WN7	Bromomethane	0.42	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WP8	Bromomethane	0.47	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WR4	Bromomethane	0.56	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WT1	Bromomethane	0.7	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WV2	Bromomethane	0.47	1	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WV3	Bromomethane	0.48	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WW9	Bromomethane	0.62	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WX9	Bromomethane	0.6	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WY6	Bromomethane	0.36	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27X23	Bromomethane	0.83	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27X29	Bromomethane	0.56	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27XC9	Bromomethane	0.53	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27XF1	Bromomethane	0.44	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V0	Bromomethane	0.62	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V0	Carbon disulfide	0.074	1	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V4	Carbon disulfide	0.06	1	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26P99	Chloride	15.9		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B285V5	Chloride	13.4		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B285V8	Chloride	16.6		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B26579	Chloroform	0.11	1	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B265L2	Chloroform	0.14	1	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26544	Chloromethane	0.28	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26567	Chloromethane	0.19	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26M91	Chloromethane	0.22	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26M96	Chloromethane	0.18	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MB1	Chloromethane	0.18	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MD1	Chloromethane	0.28	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MD6	Chloromethane	0.22	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MF1	Chloromethane	0.29	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26MK4	Chloromethane	0.16	2	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL

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Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B27WL9	Chloromethane	0.49	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WN1	Chloromethane	0.46	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WN7	Chloromethane	0.49	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WP8	Chloromethane	0.51	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WR4	Chloromethane	0.55	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WV3	Chloromethane	0.54	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WW9	Chloromethane	0.45	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WX9	Chloromethane	0.66	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27WY6	Chloromethane	0.45	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27X23	Chloromethane	0.68	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27X29	Chloromethane	0.53	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27XC9	Chloromethane	0.58	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B27XF1	Chloromethane	0.48	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V0	Chloromethane	0.21	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V4	Chloromethane	0.19	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B26924	Chromium	13		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26925	Chromium	15		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK0	Chromium	4.51		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK1	Chromium	1.65		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B284F5	Cobalt	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B284F6	Cobalt	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YP4	Copper	9.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25M79	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV0	Copper	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV2	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV3	Copper	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV5	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26546	Copper	0.306		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26569	Copper	0.888		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC2	Copper	9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC3	Copper	10		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MJ5	Copper	0.33		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MJ6	Copper	0.252		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK0	Copper	0.815		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK1	Copper	0.73		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MK9	Copper	0.348		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26ML0	Copper	0.541		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WM0	Copper	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B29VW0	Copper	11		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B23DM3	Fluoride	0.302		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FF6	Fluoride	0.136		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FK4	Fluoride	0.191		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23J95	Fluoride	0.254		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23J98	Fluoride	0.32		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23JB6	Fluoride	0.196		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B26P99	Fluoride	0.226		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B27X23	Iodomethane	0.48	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V0	Iodomethane	0.88	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B286V4	Iodomethane	0.83	2	ug/L	JBT	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B22YP4	Iron	41.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YT6	Iron	24.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YT7	Iron	34.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YV1	Iron	60.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YV5	Iron	65.5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B22YX1	Iron	20.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FF8	Iron	39.9		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FK6	Iron	30		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24MP2	Iron	52.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24MP3	Iron	46.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24MT3	Iron	169		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B24MV4	Iron	155		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B24MW2	Iron	123		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result

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Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B24PK5	Iron	141		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B24PL3	Iron	27.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24PL4	Iron	23.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24PL7	Iron	62.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25JY0	Iron	20		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25JY1	Iron	60		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25PR3	Iron	38		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26545	Iron	48		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26546	Iron	560		ug/L		J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26556	Iron	19		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26557	Iron	186		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26568	Iron	23		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26569	Iron	43		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26580	Iron	38		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26581	Iron	30		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265K8	Iron	37		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265L4	Iron	28		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265M5	Iron	21		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265M6	Iron	39		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265P3	Iron	139		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26645	Iron	154		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26756	Iron	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26909	Iron	25		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26910	Iron	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26913	Iron	34		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26914	Iron	47		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26916	Iron	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26917	Iron	29		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26920	Iron	38		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26921	Iron	58		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26928	Iron	36		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26929	Iron	65		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26932	Iron	73		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26936	Iron	20		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26937	Iron	48		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26941	Iron	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC2	Iron	103		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC3	Iron	179		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26569	Lead	0.314		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B265K7	Lead	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265L9	Lead	29		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265M0	Lead	26		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265N8	Lead	29		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WN3	Lead	0.444		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WR6	Lead	0.77		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WX4	Lead	0.759		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WX5	Lead	1.36		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B23DD0	Manganese	6.9		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B23DD0	Manganese	6.9		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NT7	Manganese	17		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25PB6	Manganese	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25PB8	Manganese	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25PC1	Manganese	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26545	Manganese	13		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26546	Manganese	18		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265L9	Manganese	18		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265M0	Manganese	18		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FK2	Methylene chloride	42		ug/L	B	R	8260_VOA_GCMS	Rejected; Method blank has greater than 2X the PQL (2 ug/l) (15 ug/L) which is greater than acceptance criteria. Sample results are slightly less than 2X the MB contamination.
B269H0	Methylene chloride	1.2		ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ PQL < 10x blank result

Table A-5. Summary of 2010 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B27WN2	Molybdenum	5.56		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B27WN3	Molybdenum	5.59		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B27WR5	Molybdenum	3.76		ug/L		J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B27WR6	Molybdenum	1.94		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B27WX4	Molybdenum	7.42		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B27WX5	Molybdenum	7.82		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B286C2	Molybdenum	4.1		ug/L		J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B286C3	Molybdenum	3.19		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B26739	Nickel	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26740	Nickel	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC7	Nickel	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD2	Nickel	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD3	Nickel	8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD7	Nickel	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B29VR4	Nickel	9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B29VR5	Nickel	11		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B29VV9	Nickel	20		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B23DM3	Nitrogen in Nitrate	0.111		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B23FF6	Nitrogen in Nitrate	6.2		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23FK4	Nitrogen in Nitrate	6.81		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23J92	Nitrogen in Nitrate	2.34		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23J93	Nitrogen in Nitrate	1.85		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23J94	Nitrogen in Nitrate	1.65		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23J95	Nitrogen in Nitrate	7.41		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23J98	Nitrogen in Nitrate	3.19		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B23JB6	Nitrogen in Nitrate	1.65		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B26P99	Nitrogen in Nitrate	6.5		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result
B24LH8	Phosphorus	143		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LH9	Phosphorus	104		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LK1	Phosphorus	109		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LK2	Phosphorus	65.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LK5	Phosphorus	116		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LK6	Phosphorus	129		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LK9	Phosphorus	148		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LL0	Phosphorus	109		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LL3	Phosphorus	136		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LL4	Phosphorus	159		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LL8	Phosphorus	183		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LN5	Phosphorus	194		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LN9	Phosphorus	103		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LR6	Phosphorus	104		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26563	Phosphorus	109		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LJ2	Selenium	1.99		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LJ3	Selenium	1.87		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LP2	Selenium	3.07		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LP3	Selenium	2		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LR9	Selenium	3.08		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24LT0	Selenium	3.29		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24M43	Selenium	3.8		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B24M44	Selenium	5.22		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26533	Selenium	1.94		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B26534	Selenium	2.07		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc

Table A-5. Summary of 2010 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason				
B26562	Selenium	1.69		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc				
B26MB7	Selenium	4.29		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc				
B26MB8	Selenium	4.18		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc				
B23DM3	Sulfate	2.77		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B23FF6	Sulfate	37.2		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B23FK4	Sulfate	36.2		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B23J95	Sulfate	41.2		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B23J98	Sulfate	35.9		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B23JB6	Sulfate	27		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B26P99	Sulfate	63.4		ug/mL	D	J+	300.0_ANIONS_IC	Estimated high "J+"; > PQL but < 10x the blank result				
B25NV0	Thallium	46		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B25TK7	Thallium	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B26MC7	Thallium	69		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B26MC8	Thallium	50		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B26MD2	Thallium	99		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-17-5	40318.45	Y	7440-38-2
B26MD3	Thallium	68		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-17-5	40318.45	N	7429-90-5
B26MD7	Thallium	102		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-S8-19	40339.35	Y	7440-50-8
B26MD8	Thallium	75		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-1E	40339.43	N	7440-50-8
B27X23	Trichloroethene	0.48	1	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL	699-13-1E	40339.43	N	7440-28-0
B27X29	Trichloroethene	0.43	1	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL	699-13-2D	40339.38	Y	7440-50-8
B26KM5	Uranium	8.21		ug/L	D	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result	699-13-2D	40339.38	N	7440-50-8
B25NT6	Vanadium	23		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-3A	40339.48	Y	7440-50-8
B25NT7	Vanadium	16		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-S3-E1	40339.41	N	7440-28-0
B25PB5	Vanadium	24		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-31-11	40373.42	N	7429-90-5
B25PB6	Vanadium	15		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-35-9	40375.5	Y	7439-92-1
B25PB8	Vanadium	27		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-38-15	40373.47	Y	7429-90-5
B25PB9	Vanadium	15		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-41-23	40374.56	Y	7439-92-1
B25PC2	Vanadium	17		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-41-23	40374.56	N	7439-92-1
B25PC4	Vanadium	15		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-46-21I	40374.47	N	7439-92-1
B25PC5	Vanadium	26		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	299-E25-3	40387.43	N	7440-62-2
B26723	Vanadium	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-22-35	40378.42	Y	7439-89-6
B26732	Vanadium	24		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-22-35	40378.42	N	7439-89-6
B26743	Vanadium	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-1A	40440.38	Y	7440-50-8
B26744	Vanadium	42		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-1A	40440.38	N	7440-50-8
B24MM9	Zinc	19		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-1E	40402.46	Y	7440-28-0
B24MN1	Zinc	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-1E	40402.46	N	7440-28-0
B24MN2	Zinc	8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-2D	40402.38	Y	7440-28-0
B25JX4	Zinc	19		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-2D	40402.38	N	7440-28-0
B25JX5	Zinc	18		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-3A	40402.42	Y	7440-28-0
B25JX7	Zinc	20		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-13-3A	40402.42	N	7440-28-0
B25JX8	Zinc	19		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-14-38	40529.42	Y	7440-50-8
B25PR6	Zinc	45		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result	699-32-22	40517.36	Y	7440-48-4
B26720	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc	699-32-22	40517.36	N	7440-48-4
B26721	Zinc	15		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B29TH2	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				
B29TH3	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc				

Table A-6. Summary of 2011 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2HFY1	Acetone	2		ug/L	B	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH00	Acetone	1.4	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH09	Acetone	1.4	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH18	Acetone	1.4	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH37	Acetone	1.8	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH38	Acetone	1.5		ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2HH53	Acetone	1.7	2	ug/L	JB	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2HH66	Acetone	2.1		ug/L	B	U	8260_VOA_GCMS	Flagged with a U; Professional judgement
B2F404	Arsenic	10.8		ug/L	D	R	200.8_METALS_ICPMS	Rejected; gross contamination
B2F408	Arsenic	11.4		ug/L	D	R	200.8_METALS_ICPMS	Rejected; gross contamination
B2F404	Barium	35		ug/L		R	6010_METALS_ICP	Rejected; gross contamination
B2F408	Barium	36		ug/L		R	6010_METALS_ICP	Rejected; gross contamination
B2B0H4	Carbon tetrachloride	1.8		ug/L	J	U	8260_VOA_GCMS	Flagged with a U; professional judgement
B2B0P7	Carbon tetrachloride	2		ug/L	J	U	8260_VOA_GCMS	Flagged with a U; professional judgement
B2B3R1	Carbon tetrachloride	1.4		ug/L	J	U	8260_VOA_GCMS	Flagged with a U; professional judgement
B2F406	Chloride	13		ug/mL	D	U	300.0_ANIONS_IC	Flagged with a U; professional judgement
B2F404	Chromium	11		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2F408	Chromium	6		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2F406	Fluoride	0.286		ug/mL	D	U	300.0_ANIONS_IC	Flagged with a U; professional judgement
B2F404	Iron	43		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2H2Y8	Iron	25		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2H2Y9	Iron	52		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JHK1	Iron	130		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2JHK7	Iron	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2DP70	Nickel	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2DP72	Nickel	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2HFY1	Nitrogen in ammonia	18.6	50	ug/L	BCN	U	350.1_AMMONIA	Flagged with a U; ≥ MDL but ≤ PQL
B2HH09	Nitrogen in ammonia	11.4	50	ug/L	BCN	U	350.1_AMMONIA	Flagged with a U; ≥ MDL but ≤ PQL
B2HH18	Nitrogen in ammonia	11.4	50	ug/L	BCN	U	350.1_AMMONIA	Flagged with a U; ≥ MDL but ≤ PQL
B2HH27	Nitrogen in ammonia	30.2	50	ug/L	BC	U	350.1_AMMONIA	Flagged with a U; ≥ MDL but ≤ PQL
B2HH37	Nitrogen in ammonia	20.5	50	ug/L	BCN	U	350.1_AMMONIA	Flagged with a U; ≥ MDL but ≤ PQL
B2F406	Nitrogen in Nitrate	7.66		ug/mL	D	U	300.0_ANIONS_IC	Flagged with a U; professional judgement
B2F406	Nitrogen in Nitrite	0.0565		ug/mL	BD	U	300.0_ANIONS_IC	PQL not provided by lab; result flagged with a "U" at the reported conc
B2B357	Silver	39		ug/L	C	R	6010_METALS_ICP	Rejected result; professional judgement based on lack of trend
B2BMK1	Silver	38		ug/L	C	R	6010_METALS_ICP	Rejected result; professional judgement based on lack of trend
B2F404	Strontium	195		ug/L		U	6010_METALS_ICP	Flagged with a U; professional judgement
B2F408	Strontium	198		ug/L		U	6010_METALS_ICP	Flagged with a U; professional judgement
B2F406	Sulfate	68.7		ug/mL	D	U	300.0_ANIONS_IC	Flagged with a U; professional judgement
B2F7L6	Total organic carbon	0.45		mg/L		U	9060_TOC	Flagged with a U; professional judgement
B2FV07	Total organic carbon	0.322		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JHH5	Total organic carbon	0.503		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JHK3	Total organic carbon	0.46		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JHM6	Total organic carbon	0.624		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2B0X7	Total organic halides	8.52		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2CFL1	Total organic halides	13		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2HF90	Total organic halides	9.9		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2HRN4	Total organic halides	8.9		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2HRP1	Total organic halides	5.6		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2HRP6	Total organic halides	3.8	5	ug/L	JB	U	9020_TOX	Flagged with a U; ≥ MDL but ≤ PQL
B2HRR1	Total organic halides	5.8		ug/L	B	J+	9020_TOX	Estimated high "J+"; > PQL but < 10x the blank result
B2F404	Tritium	13000		pCi/L		R	TRITIUM_EIE_LSC	Rejected; gross contamination

Table A-6. Summary of 2011 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2F404	Vanadium	26		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2F408	Vanadium	29		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B29YT4	Zinc	29		ug/L	C	R	6010_METALS_ICP	Rejected result; gross contamination
B2B0H3	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2B0H4	Zinc	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2BMJ2	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2BMJ3	Zinc	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2BML2	Zinc	277		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2BML3	Zinc	399		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2BRV2	Zinc	314		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2BRV3	Zinc	196		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2BRV6	Zinc	461		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2BRV7	Zinc	81		ug/L	CN	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2CKK6	Zinc	48		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2CKK8	Zinc	35		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result

Table A-7. Summary of 2012 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2N336	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	0.0000015		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	0.00011		ug/L	B	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.000001		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.000006		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.00000085		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.0000036		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,4,7,8-Hexachlorodibenzofuran	0.00000066		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,4,7,8-Hexachlorodibenzofuran	0.000005		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,6,7,8-Hexachlorodibenzofuran	0.00000057		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,6,7,8-Hexachlorodibenzofuran	0.0000022		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.00000038		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.000013		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,7,8,9-Hexachlorodibenzofuran	0.00000076		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.0000011		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.0000078		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	1,2,3,7,8-Pentachlorodibenzofuran	0.00000058		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	1,2,3,7,8-Pentachlorodibenzofuran	0.000001		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	2,3,4,6,7,8-Hexachlorodibenzofuran	0.0000005		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	2,3,4,6,7,8-Hexachlorodibenzofuran	0.00000075		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	2,3,4,7,8-Pentachlorodibenzofuran	0.00000095		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2KMD5	Acetone	2		ug/L	B	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2N3D4	Acetone	1.4	2	ug/L	JB		8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B24LJ8	Aluminum	169		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B26575	Aluminum	271		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B265L3	Aluminum	246		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2K3W4	Antimony	61.2		ug/L	BC	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B2K3W7	Antimony	55		ug/L	BC	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B2K3Y5	Antimony	98.9		ug/L	BC	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B2K3Y8	Antimony	58.9		ug/L	BC	R	6010_METALS_ICP	Rejected result; Conc < 10x blank result; lab did not report PQL or assign B flag as required
B2KK28	Antimony	84		ug/L	B	R	6010_METALS_ICP	Rejected result; gross contamination
B2KK32	Antimony	82.7		ug/L	B	R	6010_METALS_ICP	Rejected result; gross contamination
B24LJ7	Arsenic	70		ug/L	BC	R	6010_METALS_ICP	Rejected result; gross contamination
B2JTT0	Arsenic	6.28		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JTT8	Arsenic	6.35		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JTV8	Arsenic	8.05		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JTW3	Arsenic	9.51		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JTW7	Arsenic	9.79		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JWT8	Arsenic	3.95		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JWV0	Arsenic	3.4		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JWV2	Arsenic	2.81		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JWV4	Arsenic	4.64		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2JWW7	Arsenic	7.02		ug/L	DC	J+	200.8_METALS_ICPMS	Estimated high "J+"; > PQL but < 10x the blank result
B2M1N3	Barium	104		ug/L		R	6010_METALS_ICP	Rejected result; gross contamination
B2JTH8	Chromium	11.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTH8	Chromium	11.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTJ7	Chromium	6.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTP5	Chromium	10.1		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTX4	Chromium	8.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2LF80	Chromium	8.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B284F5	Cobalt	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B284F6	Cobalt	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25M79	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV0	Copper	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV2	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV3	Copper	7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25NV5	Copper	5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC2	Copper	9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC3	Copper	10		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B27WM0	Copper	6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KL90	Copper	4		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N336	Heptachlorodibenzofurans	0.0000019		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Heptachlorodibenzofurans	0.000016		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	Heptachlorodibenzo-p-dioxins	0.0000029		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Heptachlorodibenzo-p-dioxins	0.00015		ug/L	B	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	Hexachlorodibenzofurans	0.000011		ug/L	JQB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Hexachlorodibenzofurans	0.000019		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	Hexachlorodibenzo-p-dioxin	0.0000038		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Hexachlorodibenzo-p-dioxin	0.000053		ug/L	JQB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B26909	Iron	25		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc

Table A-7. Summary of 2012 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B26910	Iron	41		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTH8	Iron	429		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2JTJ1	Iron	57.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTJ7	Iron	27.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTX4	Iron	38.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTX7	Iron	19.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265K7	Lead	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265L9	Lead	29		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265M0	Lead	26		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B265N8	Lead	29		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KTX5	Lead	0.134		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2LKK2	Lead	0.414		ug/L	B	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2LKL2	Lead	0.196		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2LKL6	Lead	0.148		ug/L	BD	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KMD5	Methylene chloride	0.39	1	ug/L	J	U	8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2LNX7	Methylene chloride	1.9		ug/L	J	U	8260_VOA_GCMS	Flagged with a U; professional judgement
B2JML5	Nickel	4.3		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JML9	Nickel	4.9		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JMM5	Nickel	4.3		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTH8	Nickel	8.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTJ1	Nickel	4.9		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTJ7	Nickel	10		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTK0	Nickel	10.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JTX4	Nickel	5.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N336	Octachlorodibenzofuran	0.0000019		ug/L	QBJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Octachlorodibenzofuran	0.000036		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	Octachlorodibenzo-p-dioxin	0.0000054		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Octachlorodibenzo-p-dioxin	0.000078		ug/L	BJ	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N336	Pentachlorodibenzofurans	0.000012		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2N3C6	Pentachlorodibenzofurans	0.0000074		ug/L	QJB	U	8290_DIOXINS_GCMS	Flagged with a U; ≥ PQL < 10x blank result
B2M1N3	Strontium	416		ug/L		R	6010_METALS_ICP	Rejected result; gross contamination
B25NV0	Thallium	46		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B25TK7	Thallium	40		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC7	Thallium	69		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MC8	Thallium	50		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD2	Thallium	99		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD3	Thallium	68		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD7	Thallium	102		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B26MD8	Thallium	75		ug/L	BCN	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N3D4	Toluene	0.073	2	ug/L	JB		8260_VOA_GCMS	Flagged with a U; ≥ MDL but ≤ PQL
B2JTK5	Total organic carbon	0.375		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JTL5	Total organic carbon	0.865		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JTM4	Total organic carbon	0.563		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JV97	Total organic carbon	0.763		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JVC0	Total organic carbon	0.588		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JVC1	Total organic carbon	0.668		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2KTT4	Total organic carbon	0.126		mg/L	B	U	9060_TOC	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KTV2	Total organic carbon	0.63		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2KTW0	Total organic carbon	0.396		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2KTW8	Total organic carbon	0.219		mg/L	B	U	9060_TOC	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KTY4	Total organic carbon	0.15		mg/L	B	U	9060_TOC	PQL not provided by lab; result flagged with a "U" at the reported conc
B2LKH3	Total organic carbon	0.461		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKH8	Total organic carbon	0.772		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKJ5	Total organic carbon	1.3		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKK1	Total organic carbon	0.701		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKL2	Total organic carbon	0.479		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKL6	Total organic carbon	0.599		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2LKM4	Total organic carbon	0.664		mg/L		J+	9060_TOC	Estimated high "J+"; > PQL but < 10x the blank result
B2JVD1	Total organic halides	7.89		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B2JVD8	Total organic halides	6.59		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KKL2	Total organic halides	10.6		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B26732	Vanadium	24		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KK28	Vanadium	27.8		ug/L		J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2KK32	Vanadium	19.7		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2M1N3	Vanadium	8		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2KM79	Zinc	24.5		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2M1N3	Zinc	6.2		ug/L	B	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc

Table A-8. Summary of 2013 Sample Results Qualified Because of Method Blank, Preparation Blank or Field Blank Contamination

Sample ID	Analyte Name	Value Reported	Value Reported (AFTER VALIDATION)	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2NRM0	Arsenic	2.94		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRM1	Arsenic	2.78		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRM4	Arsenic	3.31		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRM5	Arsenic	3.16		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRM8	Arsenic	3.11		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRM9	Arsenic	3.06		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRN2	Arsenic	3.17		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRN3	Arsenic	3.38		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRP2	Arsenic	3.18		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NRP4	Arsenic	0.631		ug/L	BDC	U	200.8_METALS_ICPMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N7L2	Carbon tetrachloride	1.3		ug/L	J	U	8260_VOA_GCMS	PQL not provided by lab; result flagged with a "U" at the reported conc
B2PXX2	Iron	47.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2PXX4	Iron	28.7		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2PXY0	Iron	372		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2NVD9	Nickel	6.86		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NVH4	Nickel	12.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NVR0	Nickel	11.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2P8K1	Nickel	10.6		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2P8L6	Nickel	7.8		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2P8L8	Nickel	5.3		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2PJJ7	Nickel	6.4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2PJT5	Nickel	4		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NN38	Silver	9.35		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NN38	Silver	9.35		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N4W2	Total organic halides	11.7		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N4Y2	Total organic halides	5.53		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N5B4	Total organic halides	11.6		ug/L	B	U	9020_TOX	PQL not provided by lab; result flagged with a "U" at the reported conc
B2NVL2	Trichloroethene	4.2		ug/L		R	8260_VOA_GCMS	Rejected result; gross contamination
B2N4N6	Vanadium	14.2		ug/L	BC	U	6010_METALS_ICP	PQL not provided by lab; result flagged with a "U" at the reported conc
B2N784	Vanadium	26.9		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result
B2N799	Vanadium	25		ug/L	C	J+	6010_METALS_ICP	Estimated high "J+"; > PQL but < 10x the blank result

Table A-10. Summary of 2008 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1Y2P7	Calcium	58600	ug/L	X	R	6010_METALS_ICP	Rejected; %R > 150%
B1Y2P8	Calcium	60000	ug/L	X	R	6010_METALS_ICP	Rejected; %R > 150%
B1W4X1	Gross alpha	1.1	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80>40
B1W4Y3	Gross alpha	1.1	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80>40
B1XRH4	Gross alpha	0.3	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80>40
B1Y2R0	Gross alpha	0.491	pCi/L	U	J	9310_ALPHABETA_GPC	Esimated; %R < 69-40%
B1VMJ7	Potassium	8950	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VMJ8	Potassium	8870	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VMK0	Potassium	8720	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VMK1	Potassium	8840	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VMK9	Potassium	8970	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VML0	Potassium	8910	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VR97	Potassium	9510	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1VR98	Potassium	9580	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >130 <150
B1W523	Tritium	5000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1Y2N2	Tritium	5100	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1Y2N6	Tritium	1900	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1Y2P4	Tritium	2800	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1Y2R6	Tritium	5400	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1Y2T0	Tritium	6300	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low: %R <80 >40
B1W4R2	Uranium-235	0	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W4R8	Uranium-235	-0.00685	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W4T4	Uranium-235	0.0347	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W4V0	Uranium-235	0.08	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W4V6	Uranium-235	0.11	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W502	Uranium-235	2.06	pCi/L		J-	UISO_PLATE_AEA	Estimated low: %R <70 >40
B1W538	Uranium-235	0.138	pCi/L		J-	UISO_PLATE_AEA	Estimated low: %R <70 >40
B1W562	Uranium-235	0.0305	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W568	Uranium-235	0.0228	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W574	Uranium-235	-0.0031	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W586	Uranium-235	0.0654	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W592	Uranium-235	0	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W598	Uranium-235	0.078	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5B4	Uranium-235	0.0659	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5C0	Uranium-235	0.149	pCi/L		J-	UISO_PLATE_AEA	Estimated low: %R <70 >40
B1W5C6	Uranium-235	0.0233	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5D8	Uranium-235	-0.0119	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5F4	Uranium-235	0	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5H6	Uranium-235	0.0626	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40
B1W5J8	Uranium-235	0.0779	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R <70>40

Table A-11. Summary of 2009 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B20Y56	Gross alpha	8.5	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B22210	Gross alpha	4.6	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B1YXN8	Oil and grease	2.1	mg/L	UN	J	9070_OILGREASE	Estimated; %R <78 >40
B1YXP4	Oil and grease	2.1	mg/L	UN	J	9070_OILGREASE	Estimated; %R <78 >40
B1YXR0	Oil and grease	2.1	mg/L	UN	J	9070_OILGREASE	Estimated; %R <78 >40
B1W580	Uranium-235	-0.00567	pCi/L	U	J	UISO_PLATE_AEA	Estimated; %R<70 >40

Table A-12. Summary of 2010 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B24FC1	Gross alpha	6.8	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24FC5	Gross alpha	5.5	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24LK2	Gross alpha	2.7	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24LK6	Gross alpha	2.1	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24LL0	Gross alpha	3.3	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24LL4	Gross alpha	2.4	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24MN9	Gross alpha	11	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24MR5	Gross alpha	2.2	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80 >40
B24MR9	Gross alpha	0.0059	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80 >40
B24MW6	Gross alpha	-0.65	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80 >40
B24N09	Gross alpha	2.4	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24N34	Gross alpha	2	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B24N40	Gross alpha	-0.84	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80 >40
B288J4	Gross beta	360	pCi/L		J+	BETA_GPC	Estimated high; %R>120 <150
B29TH7	Gross beta	14	pCi/L		J+	BETA_GPC	Estimated high; %R>120 <150
B29TJ1	Gross beta	260	pCi/L		J+	BETA_GPC	Estimated high; %R>120 <150
B283W2	Iron	61	ug/L	BX	J+	6010_METALS_ICP	Estimated high; %R>120 <150
B28D29	Iron	467	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R>120 <150
B29KL6	Iron	44	ug/L	BX	J+	6010_METALS_ICP	Estimated high; %R>120 <150
B27X18	Potassium	4370	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R< 40
B27X19	Potassium	4300	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R< 40
B27X24	Potassium	3230	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R< 40
B27X25	Potassium	3100	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R< 40
B24M51	Total alpha energy emitted from Radium	0.069	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24M52	Total alpha energy emitted from Radium	0.167	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24M53	Total alpha energy emitted from Radium	-0.003	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24M54	Total alpha energy emitted from Radium	0.286	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24M55	Total alpha energy emitted from Radium	-0.008	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24M58	Total alpha energy emitted from Radium	0.109	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B25025	Total alpha energy emitted from Radium	0.018	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B25040	Total alpha energy emitted from Radium	0.072	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B25042	Total alpha energy emitted from Radium	0.058	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B25048	Total alpha energy emitted from Radium	-0.046	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B26541	Total alpha energy emitted from Radium	0.023	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B26564	Total alpha energy emitted from Radium	0.09	pCi/L	U	J	RATOT_GPC	Estimated low; %R <80 >40
B24LJ8	Total beta radiostrontium	0.63	pCi/L	U	J	SRTOT_SEP_PRECIP_GPC	Estimated; %R <80 >40
B26M88	Tritium	1900	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B26M93	Tritium	1800	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B26M98	Tritium	1900	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B27XC5	Tritium	1300	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40

Table A-13. Summary of 2011 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2CK22	Gross beta	11	pCi/L		J+	BETA_GPC	Estimated high; %R >115 <150
B2CK32	Gross beta	10	pCi/L		J+	BETA_GPC	Estimated high; %R >115 <150
B2F3Y7	Gross beta	8.2	pCi/L		J+	BETA_GPC	Estimated high; %R >115 <150
B2JHH4	Sodium	19700	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >120 <150
B2JHH7	Sodium	20600	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >120 <150
B2JHK1	Sodium	20400	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >120 <150
B2JHK7	Sodium	20900	ug/L	X	J+	6010_METALS_ICP	Estimated high; %R >120 <150
B2B357	Total beta radiostrontium	4.3	pCi/L		J+	SRTOT_SEP_PRECIP_GPC	Estimated high; %R >120 <150
B2BPX5	Tritium	86000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2BRW9	Tritium	3500	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2CK04	Tritium	100000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2CK08	Tritium	250000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2CK12	Tritium	1000000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2CKK6	Tritium	7700	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2DRB5	Tritium	32000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2DRF6	Tritium	6500	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2F462	Tritium	290000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2F464	Tritium	920000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <80 >40
B2F3V3	Uranium	3.61	ug/L	D	J+	200.8_METALS_ICPMS	Estimated high; %R >115 <150

Table A-14. Summary of 2012 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2N337	Aldrin	0.0095	ug/L	UO	R	8081_PEST_GC	Rejected; %R <76
B2KL65	Arsenic	2.1	ug/L		J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KL67	Arsenic	2.19	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KL90	Arsenic	2.15	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KL94	Arsenic	1.95	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KLB2	Arsenic	2.92	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KLB4	Arsenic	2.09	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KLC2	Arsenic	2.9	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40
B2KLC4	Arsenic	2.59	ug/L	BD	J-	200.8_METALS_ICPMS	Estimated low; %R<85 >40

Table A-15. Summary of 2013 Sample Results Qualified Because Laboratory Control Samples Did not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2NVD4	Gross alpha	6	pCi/L		J-	ALPHA_GPC	Estimated low; %R <80 >40
B2PB76	Gross alpha	1.1	pCi/L	U	J	ALPHA_GPC	Estimated; %R <80 >40
B2THW8	Gross alpha	0.45	pCi/L	U	J-	ALPHA_GPC	Estimated low, %R<80
B2THX1	Gross alpha	1.6	pCi/L	U	J-	ALPHA_GPC	Estimated low, %R<80
B2THX5	Gross alpha	17	pCi/L		J-	ALPHA_GPC	Estimated low, %R<80
B2THY6	Gross alpha	2.3	pCi/L	U	J-	ALPHA_GPC	Estimated low, %R<80
B2NVD4	Gross beta	13	pCi/L		J-	BETA_GPC	Estimated low; %R <80 >40
B2PB76	Gross beta	350	pCi/L		J-	BETA_GPC	Estimated low; %R <80 >40

Table A-17. Summary of 2008 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1T4M4	Calcium	60700	ug/L	DN	J+	6010_METALS_ICP	Estimated high; %R >125
B1T4M6	Calcium	66000	ug/L	DN	J+	6010_METALS_ICP	Estimated high; %R >125
B1TM22	Chloride	11900	mg/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1TM25	Chloride	11300	mg/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1TM40	Chloride	11700	mg/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1V8C4	Chloride	6310	mg/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1W559	Chloride	3620	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1W595	Chloride	8280	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1W5B1	Chloride	7220	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1WKH9	Chloride	6600	mg/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1WKJ8	Chloride	6220	mg/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF17	Chloride	6640	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF25	Chloride	6780	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF27	Chloride	6300	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF38	Chloride	6790	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF40	Chloride	7060	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF42	Chloride	7120	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF49	Chloride	6950	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF59	Chloride	6080	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF61	Chloride	7110	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1WKH9	Fluoride	66	mg/L	BD	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1WKJ8	Fluoride	107	mg/L	BD	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1WYT6	Fluoride	53.5	mg/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1X0T1	Fluoride	270	mg/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1X0T9	Fluoride	183	mg/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1X0W5	Fluoride	193	mg/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R>120
B1XFB1	Fluoride	168	ug/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1W534	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W535	Iron	91.2	ug/L	B	J-	6010_METALS_ICP	Estimated low; %R <30
B1W558	Iron	1080	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B1W559	Iron	328	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1W564	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W565	Iron	118	ug/L	B	J-	6010_METALS_ICP	Estimated low; %R <30
B1W582	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W583	Iron	37.2	ug/L	B	J-	6010_METALS_ICP	Estimated low; %R <30
B1W588	Iron	21.5	ug/L	B	J-	6010_METALS_ICP	Estimated low; %R <30
B1W589	Iron	538	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1W594	Iron	211	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B1W595	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5B0	Iron	72	ug/L	BN	J-	6010_METALS_ICP	Estimated low; %R <30
B1W5B1	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5C2	Iron	343	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1W5C3	Iron	446	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1W5D4	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5D5	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5H2	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5H3	Iron	20	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W2X0	Magnesium	20700	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W2X1	Magnesium	20700	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W2X3	Magnesium	16600	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W2X4	Magnesium	17100	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125

Table A-17. Summary of 2008 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1W358	Magnesium	8540	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W359	Magnesium	8650	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W534	Magnesium	23400	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W535	Magnesium	23200	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W558	Magnesium	11900	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W559	Magnesium	12300	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W564	Magnesium	11200	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W565	Magnesium	10700	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W582	Magnesium	8140	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W583	Magnesium	7940	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W588	Magnesium	73.9	ug/L	B	J+	6010_METALS_ICP	Estimated high; %R >125
B1W589	Magnesium	128	ug/L	B	J+	6010_METALS_ICP	Estimated high; %R >125
B1W594	Magnesium	13300	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W595	Magnesium	12700	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5B0	Magnesium	14100	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1W5B1	Magnesium	13400	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5C2	Magnesium	7290	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5C3	Magnesium	7370	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5D4	Magnesium	14800	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5D5	Magnesium	15000	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5H2	Magnesium	15000	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1W5H3	Magnesium	14800	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1XF17	Nitrogen in Nitrate	3990	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF25	Nitrogen in Nitrate	4260	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF27	Nitrogen in Nitrate	3850	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF38	Nitrogen in Nitrate	3370	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF40	Nitrogen in Nitrate	3250	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF42	Nitrogen in Nitrate	3980	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF51	Nitrogen in Nitrate	3380	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF59	Nitrogen in Nitrate	2830	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1XF61	Nitrogen in Nitrate	3900	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1RTM2	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1RTM7	Nitrogen in Nitrite	140	mg/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1RTP2	Nitrogen in Nitrite	61.2	mg/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B1TKC7	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1V889	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1V894	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1V899	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1V8B4	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1V8B9	Nitrogen in Nitrite	19.8	mg/L	DNU	J	300.0_ANIONS_IC	Estimated; %R <80
B1T4M4	Potassium	4240	ug/L	BN	J-	6010_METALS_ICP	Estimated low; %R <75
B1T4M6	Potassium	2530	ug/L	BN	J-	6010_METALS_ICP	Estimated low; %R <75
B1TX04	Potassium	8750	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B1TX41	Potassium	7370	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75

Table A-17. Summary of 2008 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1TX71	Potassium	2740	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1TX72	Potassium	4040	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1WYY8	Potassium	7180	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1X010	Potassium	4440	ug/L	BN	J+	6010_METALS_ICP	Estimated high; %R >125
B1X022	Potassium	7020	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1X046	Potassium	6320	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B1X861	Potassium	7780	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1X8T6	Potassium	7340	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1X8V8	Potassium	7720	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1X8V9	Potassium	7970	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B1VMJ7	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VMJ8	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VMK0	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VMK1	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VML1	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VML2	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VR43	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VR44	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VR97	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1VR98	Silver	5	ug/L	NU	R	6010_METALS_ICP	Rejected; %R <30
B1W534	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W535	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W558	Silver	5	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W559	Silver	5.3	ug/L	BC	R	6010_METALS_ICP	Rejected; %R <30
B1W564	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W565	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W582	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W583	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W588	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W589	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W594	Silver	5	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W595	Silver	5.9	ug/L	BC	R	6010_METALS_ICP	Rejected; %R <30
B1W5B0	Silver	5	ug/L	U	R	6010_METALS_ICP	Rejected; %R <30
B1W5B1	Silver	5.9	ug/L	BC	R	6010_METALS_ICP	Rejected; %R <30
B1W5C2	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W5C3	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W5D4	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W5D5	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W5H2	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1W5H3	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B1T4M4	Sodium	20900	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1T4M6	Sodium	23000	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B1WYT6	Technetium-99	100	pCi/L		J+	TC99_3MDSK_LSC	Estimated high; %R >125
B1WYX9	Technetium-99	1000	pCi/L		J+	TC99_3MDSK_LSC	Estimated high; %R >125
B1RVM6	Total organic carbon	337	mg/L	N	J-	9060_TOC	Estimated low; %R <75

Table A-18. Summary of 2009 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B203P0	Chloride	12600	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B205T7	Chloride	6670	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B205V2	Chloride	6340	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B205X1	Chloride	6920	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B205X6	Chloride	6910	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B20RB5	Chloride	23600	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B20RC5	Chloride	12300	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B20RF1	Chloride	21900	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B20PL5	Chloride	20500	ug/L	DN	J	300.0_ANIONS_IC	Estimated; %R both high and low
B1YXN8	Oil and grease	2100	ug/L	UN	J	9070_OILGREASE	Estimated; %R < 78
B1YXP4	Oil and grease	2100	ug/L	UN	J	9070_OILGREASE	Estimated; %R < 78
B1YXR0	Oil and grease	2100	ug/L	UN	J	9070_OILGREASE	Estimated; %R < 78

Table A-19. Summary of 2010 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B24LL7	Barium	28.4	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B24LL8	Barium	28.4	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B24LN0	Barium	69.3	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B24LN1	Barium	62.9	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B24LN4	Barium	37.1	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B24LN5	Barium	40.4	ug/L	DN	J+	200.8_METALS_ICPMS	Estimated high; %R >125
B26MK0	Barium	50.5	ug/L	DN	J-	200.8_METALS_ICPMS	Estimated low; %R <30
B26MK1	Barium	23.3	ug/L	DN	J-	200.8_METALS_ICPMS	Estimated low; %R <30
B23FF8	Calcium	83800	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B23FH4	Calcium	307	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B23FK6	Calcium	43700	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B23FK9	Calcium	37700	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B23FL0	Calcium	83500	ug/L	N	J+	6010_METALS_ICP	Estimated high; %R >125
B23FK0	Chloride	8570	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >125
B267Y1	Chloride	81100	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B267Y3	Chloride	5640	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B267Y4	Chloride	5410	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B26NF1	Chloride	11800	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >125
B27BJ3	Chloride	12400	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27BJ5	Chloride	21500	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27BJ6	Chloride	21700	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27BJ7	Chloride	8270	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27BJ8	Chloride	18300	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27BK0	Chloride	18800	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >125
B24NV2	Fluoride	251	ug/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B24NV4	Fluoride	323	ug/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B27WL4	Iron	38	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B27WL5	Iron	38	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B27WM6	Iron	38	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B27WM7	Iron	539	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B27WY0	Iron	1760	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B27WY1	Iron	547	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B27XD6	Iron	165	ug/L	BN	J-	6010_METALS_ICP	Estimated low; %R <30
B27XD7	Iron	215	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <30
B28D28	Iron	163	ug/L	BN	J+	6010_METALS_ICP	Estimated high; %R >125
B27X18	Potassium	4370	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R <30

Table A-19. Summary of 2010 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B27X19	Potassium	4300	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R <30
B27X24	Potassium	3230	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R <30
B27X25	Potassium	3100	ug/L	X	J-	6010_METALS_ICP	Estimated low; %R <30
B26747	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B26748	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B26924	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B26940	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269J6	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269J7	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269J9	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269K0	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269K2	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B269K3	Silver	5	ug/L	UN	R	6010_METALS_ICP	Rejected; %R <30
B23FK0	Sulfate	41300	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >125
B24PW0	Sulfate	106000	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B24T37	Sulfate	25000	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <75
B25T90	Sulfate	72900	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <75
B23BN4	Total organic carbon	344	ug/L	BNX	J-	9060_TOC	Estimated low; %R <75
B268F1	Total organic halides	5	ug/L	UN	J	9020_TOX	Estimated; %R <75
B23DF8	Tritium	62000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <75
B23DH1	Tritium	50000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <75
B23DH4	Tritium	-17	pCi/L	U	J	TRITIUM_EIE_LSC	Estimated; %R <75
B23DK2	Tritium	23000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <75
B23DK4	Tritium	-77	pCi/L	U	J	TRITIUM_EIE_LSC	Estimated; %R <75
B23DL5	Tritium	2100	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <75
B23FL0	Tritium	49000	pCi/L		J-	TRITIUM_EIE_LSC	Estimated low; %R <75

Table A-20. Summary of 2012 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2KTX6	Calcium	56300	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KTY0	Calcium	57600	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV02	Calcium	78700	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV06	Calcium	78300	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV10	Calcium	82000	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV14	Calcium	81500	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV20	Calcium	68000	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2KV28	Calcium	68200	ug/L		J+	6010_METALS_ICP	Estimated high; %R >125
B2JPY9	Chloride	18800	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2MXF6	Chloride	24700	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N1F3	Chloride	2860	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N3D1	Chloride	25900	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2JTN7	Nitrogen in Nitrate	4450	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2JTR1	Nitrogen in Nitrate	3720	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2L9H8	Nitrogen in Nitrite	173	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2L9J1	Nitrogen in Nitrite	150	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2L9J4	Nitrogen in Nitrite	131	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2L9J6	Nitrogen in Nitrite	142	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2L9J9	Nitrogen in Nitrite	75.7	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2LBK0	Nitrogen in Nitrite	259	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2LBK6	Nitrogen in Nitrite	219	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2LBL2	Nitrogen in Nitrite	227	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2LBP0	Nitrogen in Nitrite	197	ug/L	BDN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2JXB9	Silver	4	ug/L	UN	R	6010_METALS_ICP	Rejected; <30
B2JXD1	Silver	4	ug/L	UN	R	6010_METALS_ICP	Rejected; <30
B2JXF8	Silver	4	ug/L	UN	R	6010_METALS_ICP	Rejected; <30
B2KTX6	Sodium	24900	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KTY0	Sodium	23600	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV02	Sodium	21100	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV06	Sodium	21300	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV10	Sodium	23900	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV14	Sodium	25700	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV20	Sodium	19800	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2KV28	Sodium	20400	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2K6M4	Sulfate	26200	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2L9F5	Total organic carbon	159	ug/L	BN	J-	9060_TOC	Estimated low; %R <75
B2LB02	Total organic carbon	1740	ug/L	N	J+	9060_TOC	Estimated high; %R >125

Table A-20. Summary of 2012 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2LB04	Total organic carbon	2610	ug/L	N	J+	9060_TOC	Estimated high; %R >125
B2LB13	Total organic carbon	217	ug/L	BN	J-	9060_TOC	Estimated low; %R <75
B2LB20	Total organic carbon	212	ug/L	BN	J-	9060_TOC	Estimated low; %R <75
B2LBJ9	Total organic carbon	591	ug/L	N	J+	9060_TOC	Estimated high; %R >125
B2LBL7	Total organic carbon	7160	ug/L	N	J+	9060_TOC	Estimated high; %R >125

Table A-21. Summary of 2013 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2NRT7	Calcium	38700	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2NRV0	Calcium	37900	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2NRW2	Calcium	35100	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2NRW8	Calcium	34400	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2R617	Calcium	52700	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2N3P8	Chloride	13600	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N4J5	Chloride	6180	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N4K5	Chloride	6090	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N4L0	Chloride	6500	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N4L5	Chloride	6090	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N4M9	Chloride	7600	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N4N3	Chloride	7220	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2N6Y7	Chloride	14500	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N700	Chloride	14700	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N710	Chloride	12500	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N791	Chloride	7420	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N7B3	Chloride	6570	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL04	Chloride	20800	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL10	Chloride	17400	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL15	Chloride	18100	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL19	Chloride	19700	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL23	Chloride	23500	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL28	Chloride	9330	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NL34	Chloride	22000	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NMB9	Chloride	23200	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2NX43	Chloride	7380	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NX52	Chloride	3840	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NX59	Chloride	4420	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXB3	Chloride	11600	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXF9	Chloride	15000	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2PFK0	Chloride	6870	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2R097	Chloride	20300	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2R0B4	Chloride	21800	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2R134	Chloride	14000	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2R139	Chloride	166000	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N3W3	Fluoride	186	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N725	Fluoride	234	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N7F8	Fluoride	448	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80

Table A-21. Summary of 2013 Sample Results Qualified Because MS/MSD Recoveries/RPDs Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2N7J6	Fluoride	291	ug/L	DN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N7M5	Fluoride	47	ug/L	BDN	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXF9	Fluoride	200	ug/L	DN	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2R617	Magnesium	18900	ug/L	N	J-	6010_METALS_ICP	Estimated low; %R <75
B2N791	Nitrogen in Nitrate	4490	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXF9	Nitrogen in Nitrate	6400	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2R134	Nitrogen in Nitrate	6060	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2R140	Nitrogen in Nitrate	10400	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2TLD7	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2TLD8	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2TLF0	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2TLF2	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2TLJ1	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2TLJ3	Silver	5	ug/L	UN	J-	6010_METALS_ICP	Estimated low; %R <75
B2NVD4	Sodium	27300	ug/L		J-	6010_METALS_ICP	Estimated low; %R <75
B2N3W3	Sulfate	77000	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N705	Sulfate	69700	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N725	Sulfate	91400	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N7B7	Sulfate	44500	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2N7C1	Sulfate	48400	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXB2	Sulfate	33800	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXB3	Sulfate	42100	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXB6	Sulfate	35800	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2NXB7	Sulfate	25900	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2PJF4	Sulfate	28300	ug/L	D	J-	300.0_ANIONS_IC	Estimated low; %R <80
B2PJV0	Sulfate	29700	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2PJY3	Sulfate	64800	ug/L	D	J+	300.0_ANIONS_IC	Estimated high; %R >120
B2R6D3	Uranium	6.03	ug/L	DN	J+	200.8_METALS_ICP MS	Estimated high; %R >130

Table A-23. Summary of 2008 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1W4Y1	1,2-Dibromo-3-chloropropane	0.48	ug/L	UT	J	8260_VOA_GCMS	Estimated; %R <79 >20
B1W593	2,4-Dichlorophenol	1	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1W593	2,4-Dinitrophenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1W593	2-Methylphenol (cresol, o-)	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1W593	2-Nitrophenol	1	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1W593	3+4 Methylphenol (cresol, m+p)	1	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1TXH0	4,4'-DDD (Dichlorodiphenyldichloroethane)	0.0075	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	4,4'-DDE (Dichlorodiphenyldichloroethylene)	0.013	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	4,4'-DDT (Dichlorodiphenyltrichloroethane)	0.013	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Aldrin	0.0044	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Alpha-BHC	0.0031	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	0.015	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1W4Y1	Bromomethane	0.5	ug/L	UT	J	8260_VOA_GCMS	Estimated; %R <79 >20
B1TXH0	Chlordane	0.099	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Delta-BHC	0.0046	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Dieldrin	0.0057	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Endosulfan I	0.0078	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Endosulfan II	0.0053	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Endosulfan sulfate	0.0063	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Endrin	0.0068	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Endrin aldehyde	0.009	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Gamma-BHC (Lindane)	0.0032	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Heptachlor	0.034	ug/L	UN	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Heptachlor epoxide	0.0062	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1TXH0	Methoxychlor	0.01	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30
B1W593	Pentachlorophenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1W593	Phenol	4	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B1TXH0	Toxaphene	0.59	ug/L	U	J	8081_PEST_GC	Estimated; %R >10 <30

Table A-24. Summary of 2009 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B1Y6X2	2,3,4,6-Tetrachlorophenol	2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1Y6X2	2,4,5-Trichlorophenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,4,5-Trichlorophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2,4,6-Trichlorophenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,4,6-Trichlorophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2,4-Dichlorophenol	2.1	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,4-Dichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B204Y7	2,4-Dichlorophenol	2.1	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1Y6X2	2,4-Dimethylphenol	2.1	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,4-Dimethylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2,4-Dinitrophenol	2.4	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,4-Dinitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2,6-Dichlorophenol	2.1	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2,6-Dichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2-Chlorophenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2-Chlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2-Methylphenol (cresol, o-)	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2-Methylphenol (cresol, o-)	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	2-Nitrophenol	2.3	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	2-Nitrophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	3+4 Methylphenol (cresol, m+p)	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1Y6X2	4,6-Dinitro-2-methylphenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	4,6-Dinitro-2-methylphenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	4-Chloro-3-methylphenol	2.4	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	4-Chloro-3-methylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1YXP4	4-Methylphenol (cresol, p-)	20	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	4-Nitrophenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	4-Nitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B204Y7	4-Nitrophenol	2.2	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1Y6X2	Dinoseb(2-secButyl-4,6-dinitrophenol)	2.4	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1Y6X2	Pentachlorophenol	2.4	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	Pentachlorophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20
B1Y6X2	Phenol	2.3	ug/L	UN	R	8040_PHENOLIC_GC	Rejected; %R <20
B1YXP4	Phenol	4	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <47 >20

Table A-25. Summary of 2010 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B25M04	1,2,4-Trichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	1,2,4-Trichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	1,2,4-Trichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	1,2-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	1,2-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	1,2-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	1,3-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	1,3-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	1,3-Dichlorobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	2,4,5-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4,5-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4,5-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,4,6-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4,6-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4,6-Trichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,4-Dichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4-Dichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4-Dichlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,4-Dimethylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4-Dimethylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4-Dimethylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,4-Dinitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4-Dinitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4-Dinitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,4-Dinitrotoluene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,4-Dinitrotoluene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,4-Dinitrotoluene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2,6-Dinitrotoluene	2.2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2,6-Dinitrotoluene	2.2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2,6-Dinitrotoluene	2.2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2-Chloronaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2-Chloronaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2-Chloronaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2-Chlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	2-Chlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	2-Chlorophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	2-Methylnaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2-Methylnaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2-Methylnaphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2-Methylphenol (cresol, o-)	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	2-Methylphenol (cresol, o-)	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	2-Methylphenol (cresol, o-)	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	2-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	2-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	2-Nitrophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	2-Nitrophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20

Table A-25. Summary of 2010 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B25M14	2-Nitrophenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	3-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	3-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	3-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	4-Chloro-3-methylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	4-Chloro-3-methylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	4-Chloro-3-methylphenol	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	4-Chloroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	4-Chloroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	4-Chloroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	4-Chlorophenylphenyl ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	4-Chlorophenylphenyl ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	4-Chlorophenylphenyl ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	4-Methylphenol (cresol, p-)	10	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	4-Methylphenol (cresol, p-)	10	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	4-Methylphenol (cresol, p-)	10	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	4-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	4-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	4-Nitroaniline	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	4-Nitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	4-Nitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	4-Nitrophenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25PC5	4-Nitrophenol	0.9	ug/L	UT	J	8270_SVOA_GCMS	Estimated; %R <54 >20
B26M91	4-Nitrophenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26M96	4-Nitrophenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26MB1	4-Nitrophenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B25M04	Acenaphthene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Acenaphthene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Acenaphthene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Acenaphthylene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Acenaphthylene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Acenaphthylene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Bis(2-Chloroethoxy)methane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Bis(2-Chloroethoxy)methane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Bis(2-Chloroethoxy)methane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Bis(2-chloroethyl) ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	Bis(2-chloroethyl) ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	Bis(2-chloroethyl) ether	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	Dibenzofuran	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Dibenzofuran	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Dibenzofuran	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Diethylphthalate	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Diethylphthalate	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Diethylphthalate	1.7	ug/L	J	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Dimethyl phthalate	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Dimethyl phthalate	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Dimethyl phthalate	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20

Table A-25. Summary of 2010 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B25M09	Ethylbenzene	0.086	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20
B25M04	Fluorene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Fluorene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Fluorene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Hexachlorobutadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Hexachlorobutadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Hexachlorobutadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Hexachlorocyclopentadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Hexachlorocyclopentadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Hexachlorocyclopentadiene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Hexachloroethane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	Hexachloroethane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	Hexachloroethane	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M04	Isophorone	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Isophorone	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Isophorone	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Naphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Naphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Naphthalene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	Nitrobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M09	Nitrobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M14	Nitrobenzene	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 41 >20
B25M04	n-Nitrosodi-n-dipropylamine	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	n-Nitrosodi-n-dipropylamine	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	n-Nitrosodi-n-dipropylamine	1	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25PC5	Pentachlorophenol	0.9	ug/L	UT	J	8270_SVOA_GCMS	Estimated; %R <54 >20
B26M91	Pentachlorophenol	1.3	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26M96	Pentachlorophenol	1.3	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26MB1	Pentachlorophenol	1.3	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B25M04	Phenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M09	Phenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25M14	Phenol	2	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R < 20
B25PC5	Phenol	0.9	ug/L	UT	J	8270_SVOA_GCMS	Estimated; %R <54 >20
B26M91	Phenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26M96	Phenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B26MB1	Phenol	2	ug/L	U	R	8270_SVOA_GCMS	Rejected; %R <20
B25M09	Styrene	0.074	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20
B25M09	Tetrachloroethene	0.18	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20
B25M09	Toluene	0.072	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20
B25M09	Trichloroethene	0.21	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20
B25M09	Xylenes (total)	0.2	ug/L	U	R	8260_VOA_GCMS	Rejected; %R <20

Table A-26. Summary of 2012 Sample Results Qualified Because Surrogate Recoveries Did Not Meet QC Acceptance Criteria

Sample ID	Analyte Name	Value Reported	Units	Lab Qualifier	Validation Qualifier	METHOD_NAME	Reason
B2L1C9	Phenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L1C9	n-Nitrosodi-n-dipropylamine	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L1C9	2-Methylphenol (cresol, o-)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L1C9	2-Chlorophenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L1C9	3+4 Methylphenol (cresol, m+p)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	1,4-Dichlorobenzene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	n-Nitrosodi-n-dipropylamine	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	3+4 Methylphenol (cresol, m+p)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	Phenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	2-Methylphenol (cresol, o-)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2L8R1	2-Chlorophenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2M5J4	Phenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2M5J4	n-Nitrosodi-n-dipropylamine	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2M5J4	2-Methylphenol (cresol, o-)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2M5J4	2-Chlorophenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2M5J4	3+4 Methylphenol (cresol, m+p)	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <41 >20
B2KK39	4-Nitrophenol	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,4-Dimethylphenol	2.1	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,3,4,6-Tetrachlorophenol	2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	4-Chloro-3-methylphenol	2.4	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	3+4 Methylphenol (cresol, m+p)	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	Phenol	2.3	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,4-Dichlorophenol	2.1	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,4-Dinitrophenol	2.4	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	4,6-Dinitro-2-methylphenol	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,6-Dichlorophenol	2.1	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	Pentachlorophenol	2.4	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,4,6-Trichlorophenol	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2-Nitrophenol	2.3	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	Dinoseb(2-secButyl-4,6-dinitrophenol)	2.4	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2-Methylphenol (cresol, o-)	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2-Chlorophenol	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2KK39	2,4,5-Trichlorophenol	2.2	ug/L	U	R	8040_PHENOLIC_GC	Rejected; %R <20
B2MXD6	Anthracene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Acenaphthylene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Acenaphthene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Phenanthrene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Fluorene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Pentachlorophenol	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	Naphthalene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20
B2MXD6	2-Methylnaphthalene	0.9	ug/L	U	J	8270_SVOA_GCMS	Estimated; %R <60 >20

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Appendix B

200-PO-1 Groundwater Operable Unit Trend/Outlier Evaluation

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Table

Figures

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Table B-1. Summary of 200-PO-1 Groundwater OU Wells with Occurrences of Organic Compounds Above Comparison Values

Well	Trend Evaluation Comment	Figure #
2,6-Dinitrotoluene (Comparison Value = 16 µg/L)		
299-E24-23	Presence does not suggest a trend. Single sample analyzed at this well over 10-year time frame.	Figure B-1
Bis(2-ethylhexyl) phthalate (Comparison Value = 6 µg/L)		
299-E25-20	Presence not associated with a trend. Single occurrence and 3 nondetects. Also known as a common laboratory contaminant.	Figure B-2
699-25-34A	Presence does not suggest a trend. Single sample analyzed at this well over 10-year time frame. Also known as a common laboratory contaminant.	Figure B-3
699-S6-E4K	Presence not associated with a trend. Single detection and and 19 nondetects. Also known as a common laboratory contaminant.	Figure B-4
Bromodichloromethane (Comparison Value = 0.71 µg/L)		
499-S0-7	Concentrations suggest a trend; 3 samples collected over 10 year time frame.	Figure B-5
499-S0-8	Concentrations suggest a trend; 3 samples collected over 10 year time frame.	Figure B-6
499-S1-8J	Concentrations suggest a trend; 2 nondetects followed by two detections. Four samples collected over 10 year time frame.	Figure B-7
Carbon Tetrachloride (Comparison Value = 0.63 µg/L)		
299-E24-18	Presence does not suggest a trend. Single sample analyzed at this well over 10-year time frame.	Figure B-8
299-E25-20	Presence does not suggest a trend. Single detection followed by a single nondetect.	Figure B-9
699-22-35	Presence not associated with a trend. Three nonconsecutive detections and 20 nondetects.	Figure B-10

Table B-1. Summary of 200-PO-1 Groundwater OU Wells with Occurrences of Organic Compounds Above Comparison Values

Well	Trend Evaluation Comment	Figure #
699-23-34A	Presence not associated with a trend. Single detection and 35 nondetects.	Figure B-11
699-24-46	Presence not associated with a trend. Two nonconsecutive detections and 5 nondetects.	Figure B-12
699-25-33A	Presence not associated with a trend. Single detection and 21 nondetects.	Figure B-13
699-25-34A	Presence not associated with a trend. Three nonconsecutive detections and 18 nondetects.	Figure B-14
699-26-33	Presence not associated with a trend. Four detections and 18 nondetects.	Figure B-15
699-S6-E4A	Presence not associated with a trend. Two consecutive detections and 19 nondetects.	Figure B-16
699-S6-E4K	Presence not associated with a trend. Single detection and 21 nondetects.	Figure B-17
699-S6-E4L	Presence not associated with a trend. Three detections and 21 nondetects.	Figure B-18
Chloroform (Comparison Value = 1.4 µg/L)		
699-13-1A	Concentrations suggest a trend; 3 samples collected over 10 year time frame.	Figure B-19
Dibromochloromethane(Comparison Value = 0.52 µg/L)		
499-S0-7	Concentrations suggest a trend; 3 samples collected over 10 year time frame.	Figure B-20
499-S0-8	Concentrations suggest a trend; 3 samples collected over 10 year time frame.	Figure B-21
499-S1-8J	Presence not associated with a trend. Single detection and three nondetects.	Figure B-22
n-Nitrosodi-n-dipropylamine (Comparison Value = 0.013 µg/L)		
299-E24-23	Presence does not suggest a trend. Single detection and single nondetect.	Figure B-23

Table B-1. Summary of 200-PO-1 Groundwater OU Wells with Occurrences of Organic Compounds Above Comparison Values

Well	Trend Evaluation Comment	Figure #
Trichloroethene (Comparison Value = 0.95 µg/L)		
299-E17-14	Presence not associated with a trend. Two nonconsecutive detections and 4 nondetects.	Figure B-24
299-E17-19	Presence not associated with a trend. Two nonconsecutive detections and 4 nondetects.	Figure B-25
299-E24-16	Presence does not suggest a trend. Single sample analyzed at this well over 10-year time frame.	Figure B-26
299-E24-23	Presence not associated with a trend. Single detection and 2 nondetects.	Figure B-27
699-10-54A	Presence not associated with a trend. Single dectection preceeded by 10 nondetects.	Figure B-28
699-S6-E4L	Presence associated with an upward trend. Twelve detections and 9 nondetects. Recent increase in 2013.	Figure B-29

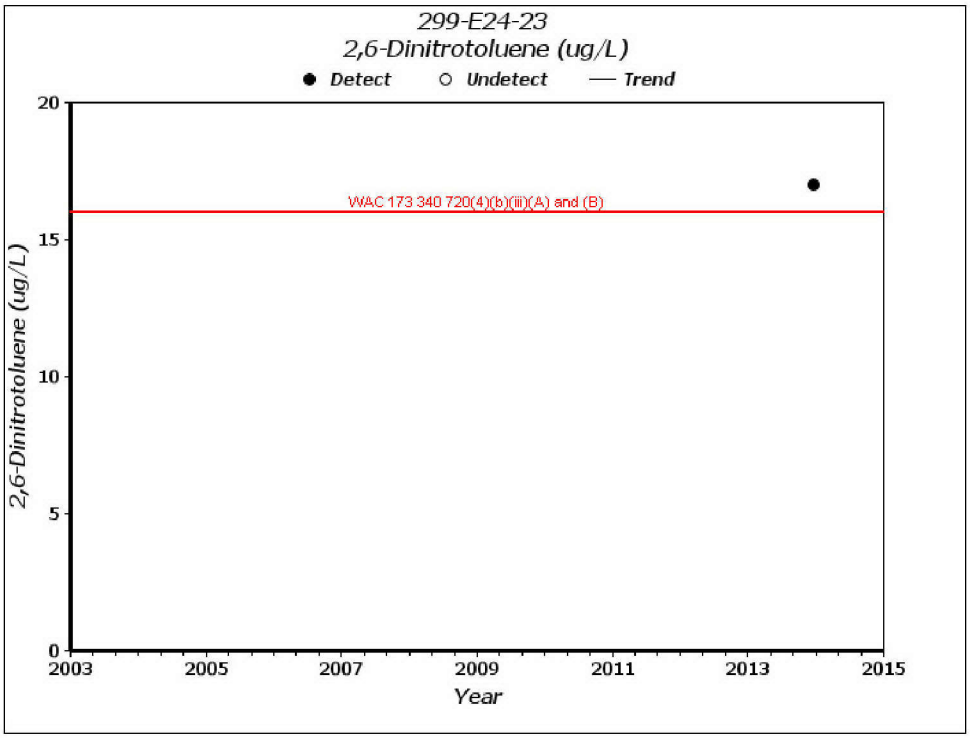


Figure B-1. 2,6-Dinitrotoluene Concentrations in Well 299-E24-23

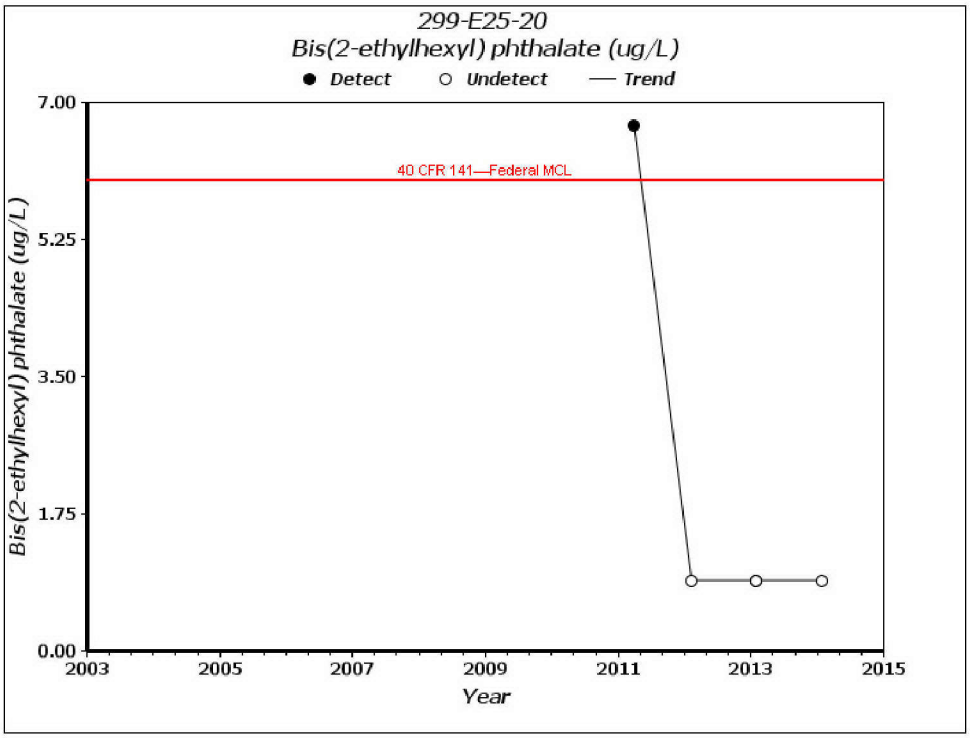


Figure B-2. Bis(2-ethylhexyl) Phthalate Concentrations in Well 299-E25-20

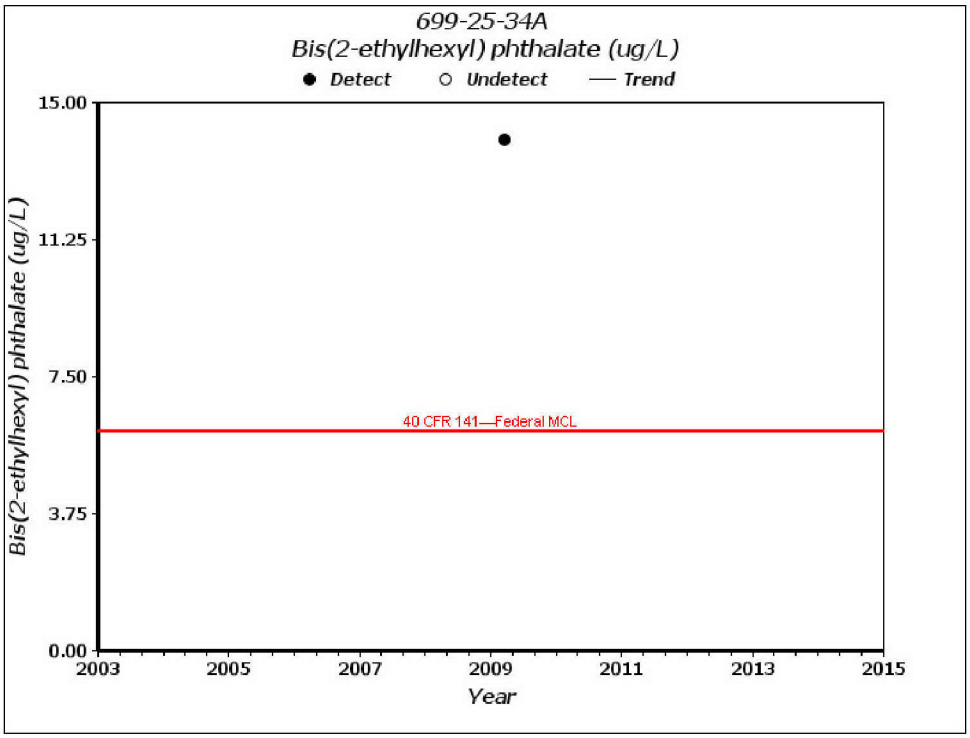


Figure B-3. Bis(2-ethylhexyl) Phthalate Concentrations in Well 699-25-34A

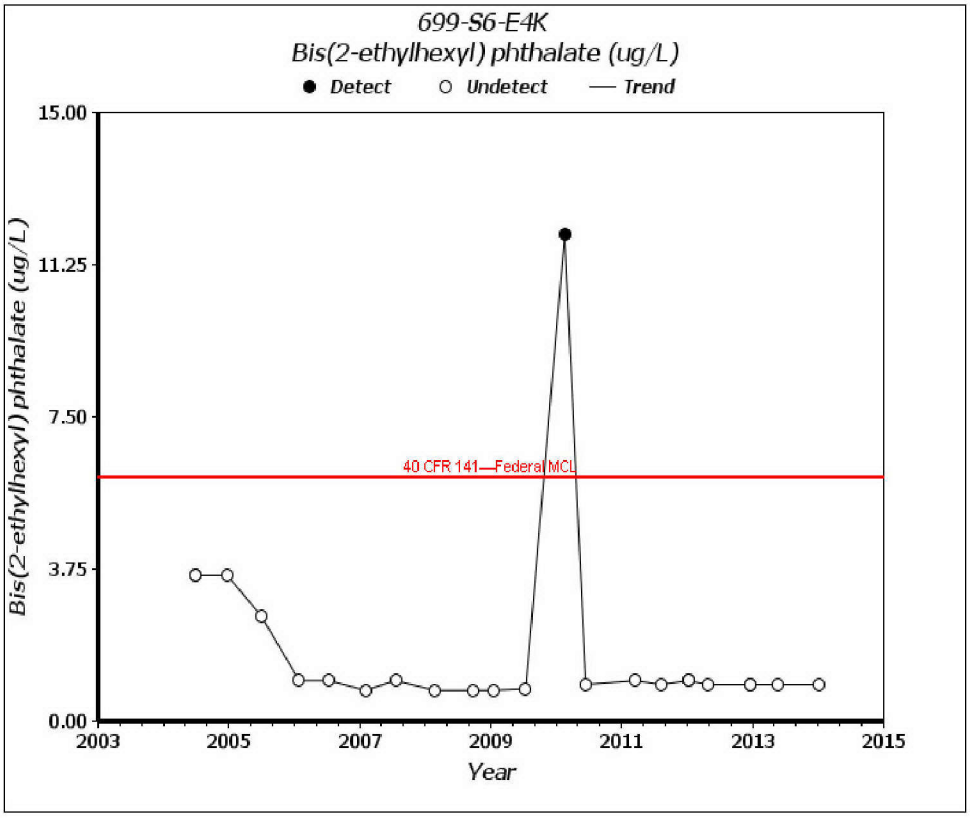


Figure B-4. Bis(2-ethylhexyl) Phthalate Concentrations in Well 699-S6-E4K

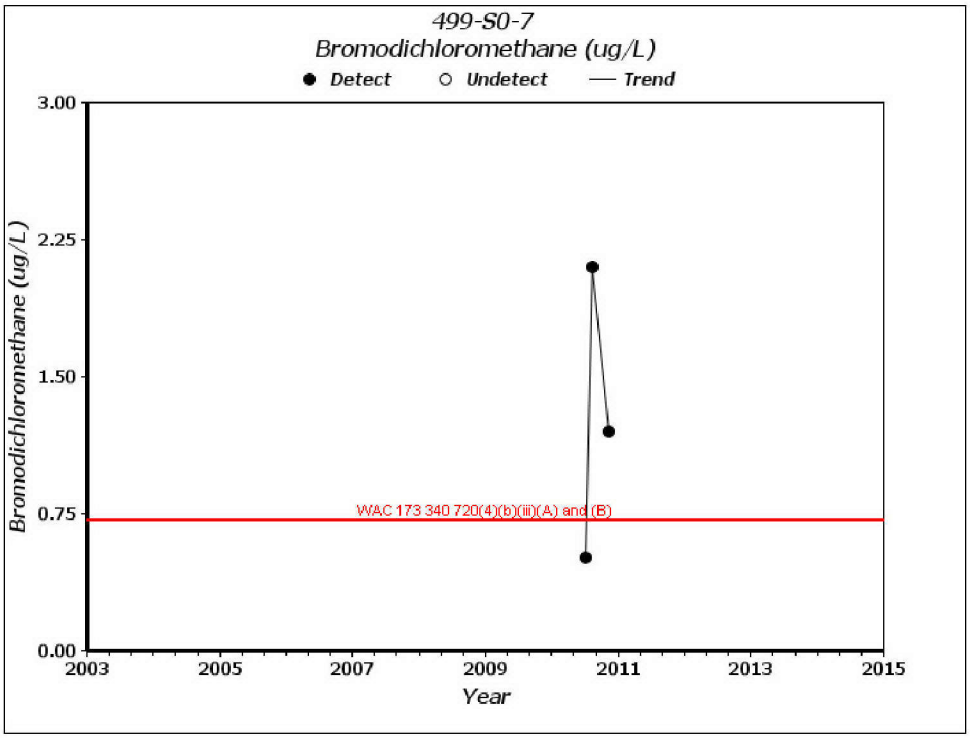


Figure B-5. Bromodichloromethane Concentrations in Well 499-S0-7

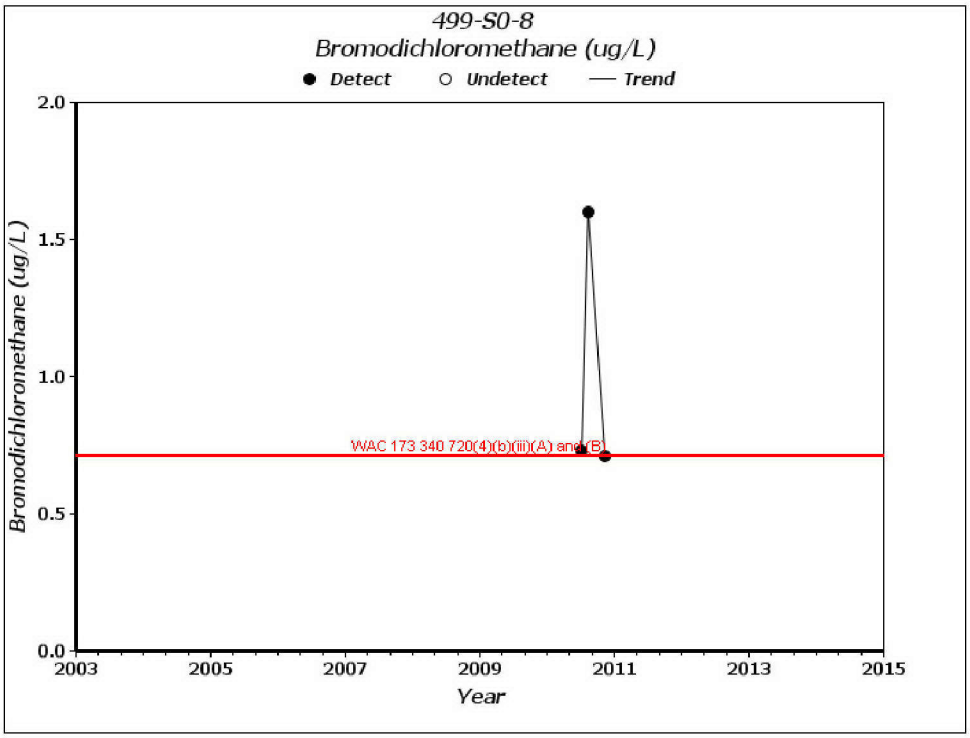


Figure B-6. Bromodichloromethane Concentrations in Well 499-S0-8

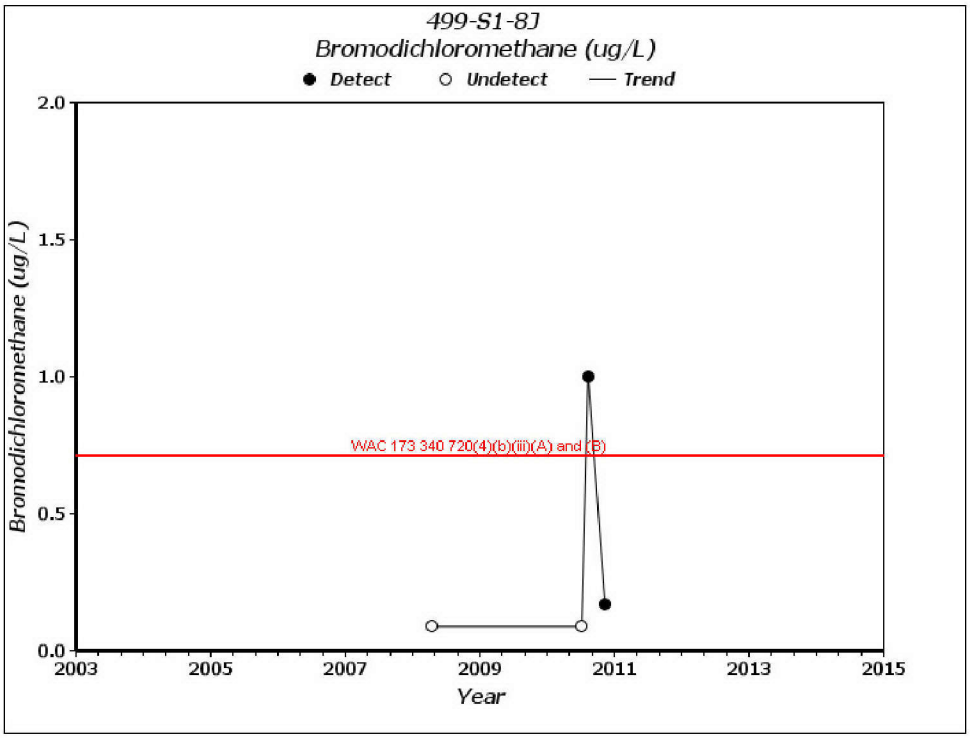


Figure B-1. Bromodichloromethane Concentrations in Well 499-S1-8J

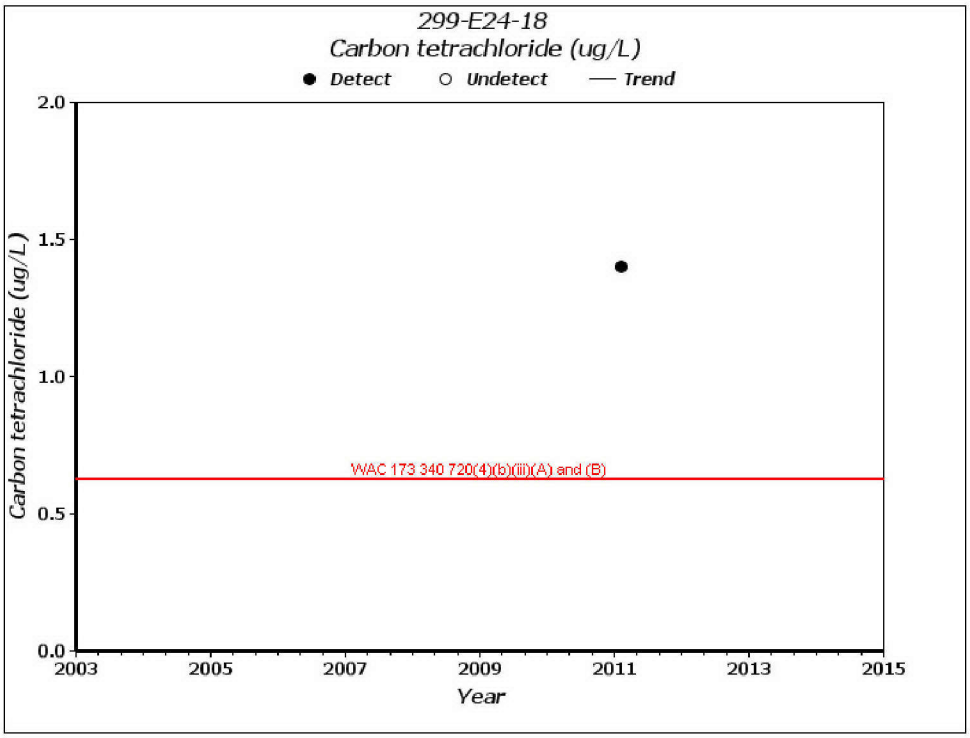


Figure B-8. Carbon Tetrachloride Concentrations in Well 299-E24-18

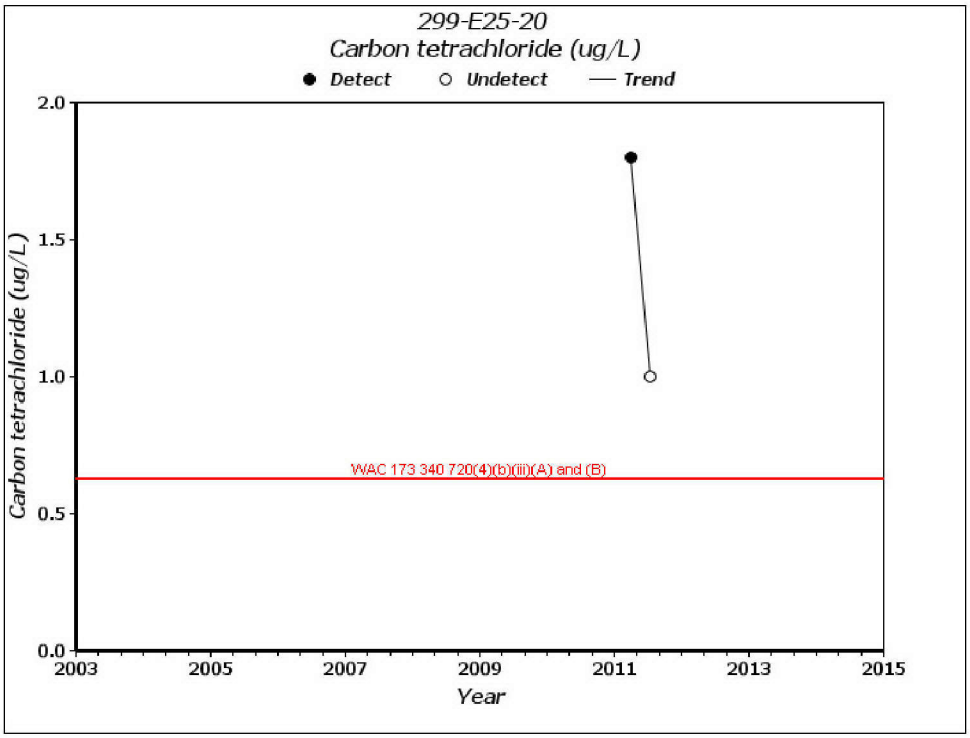


Figure B-2. Carbon Tetrachloride Concentrations in Well 299-E25-20

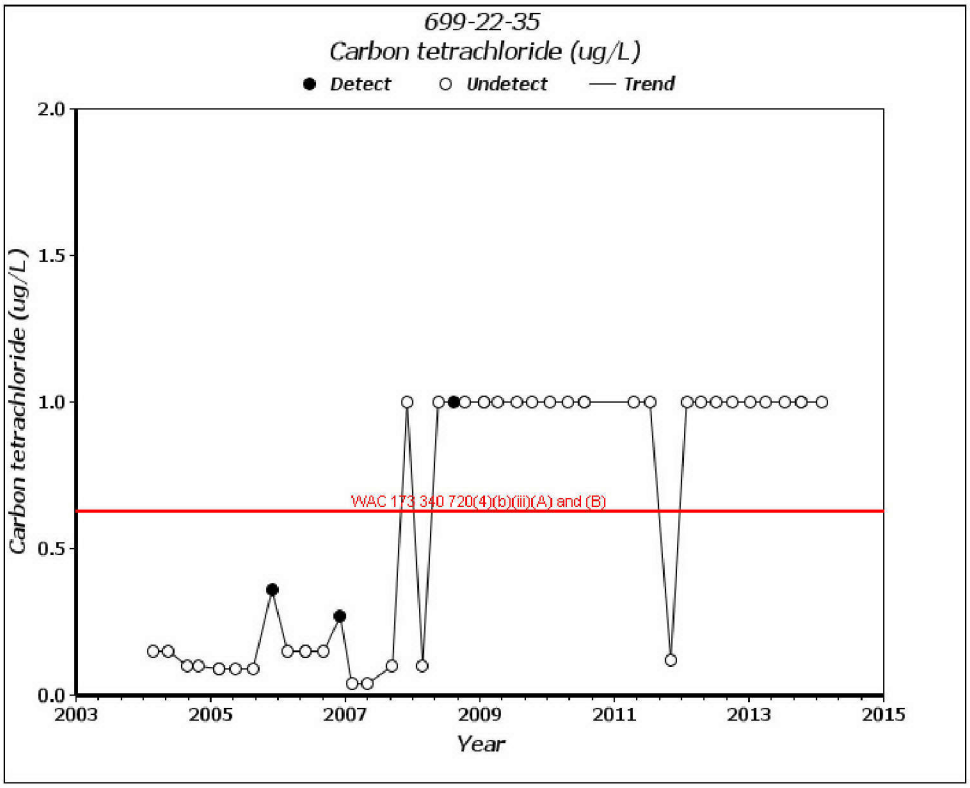


Figure B-10. Carbon Tetrachloride Concentrations in Well 699-22-35

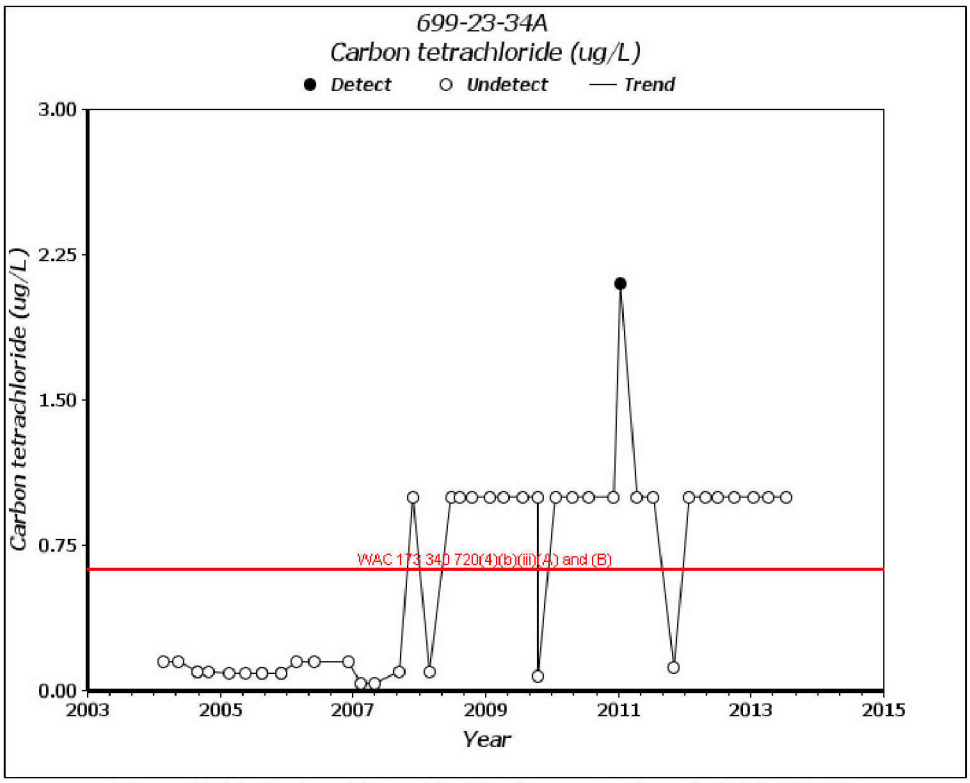
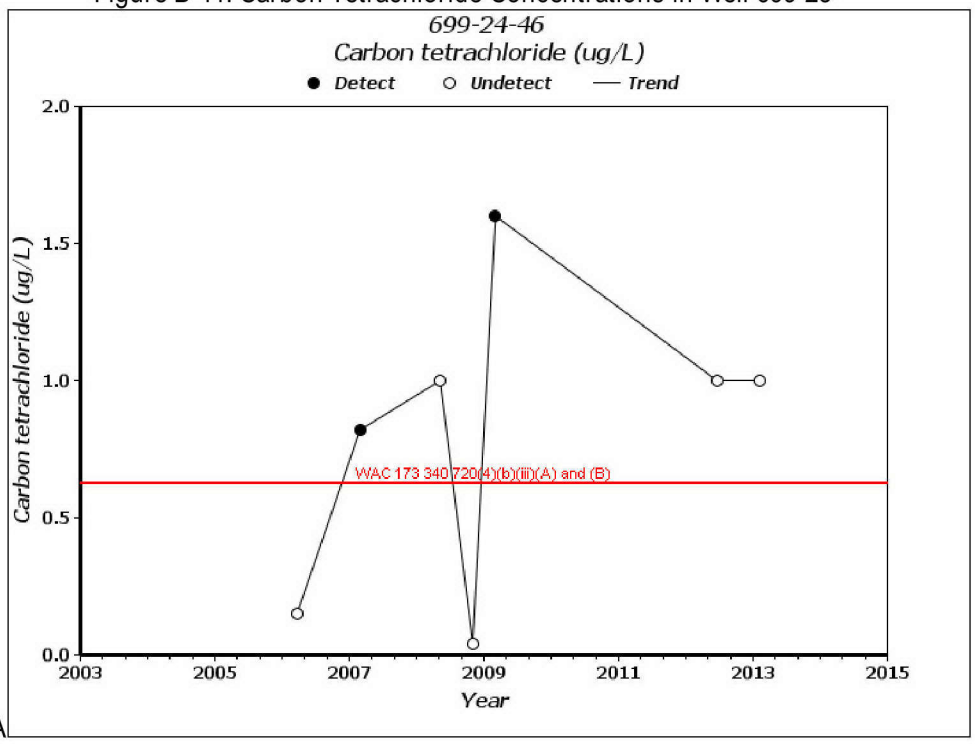


Figure B-11. Carbon Tetrachloride Concentrations in Well 699-23-



34A

Figure B-12. Carbon Tetrachloride Concentrations in Well 699-24-46

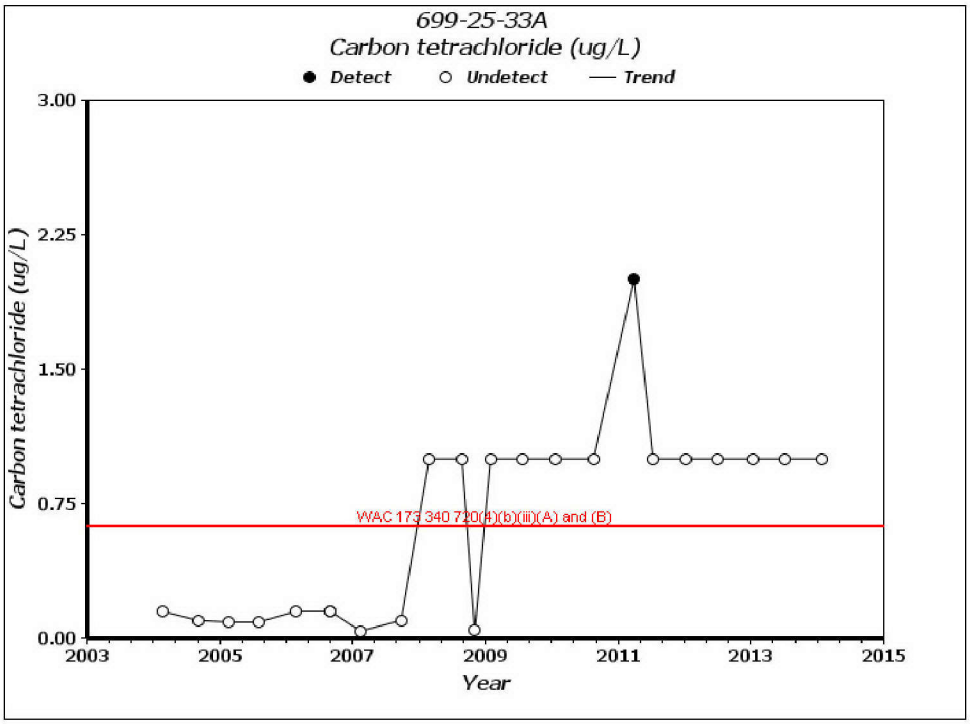


Figure B-13. Carbon Tetrachloride Concentrations in Well 699-25-33A

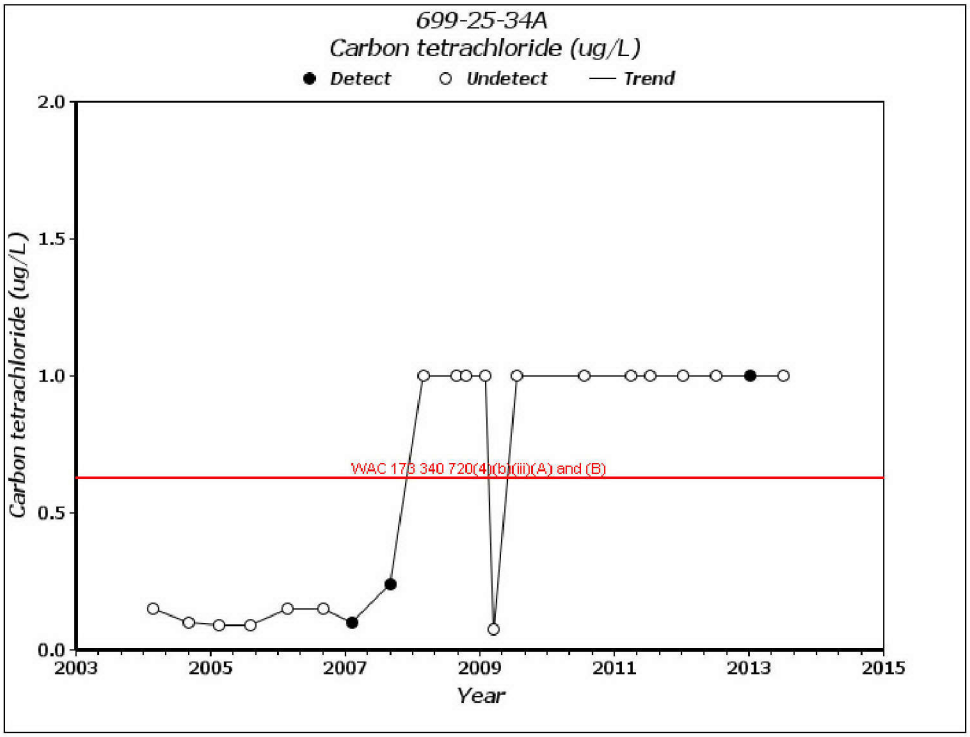


Figure B-14. Carbon Tetrachloride Concentrations in Well 699-25-34A

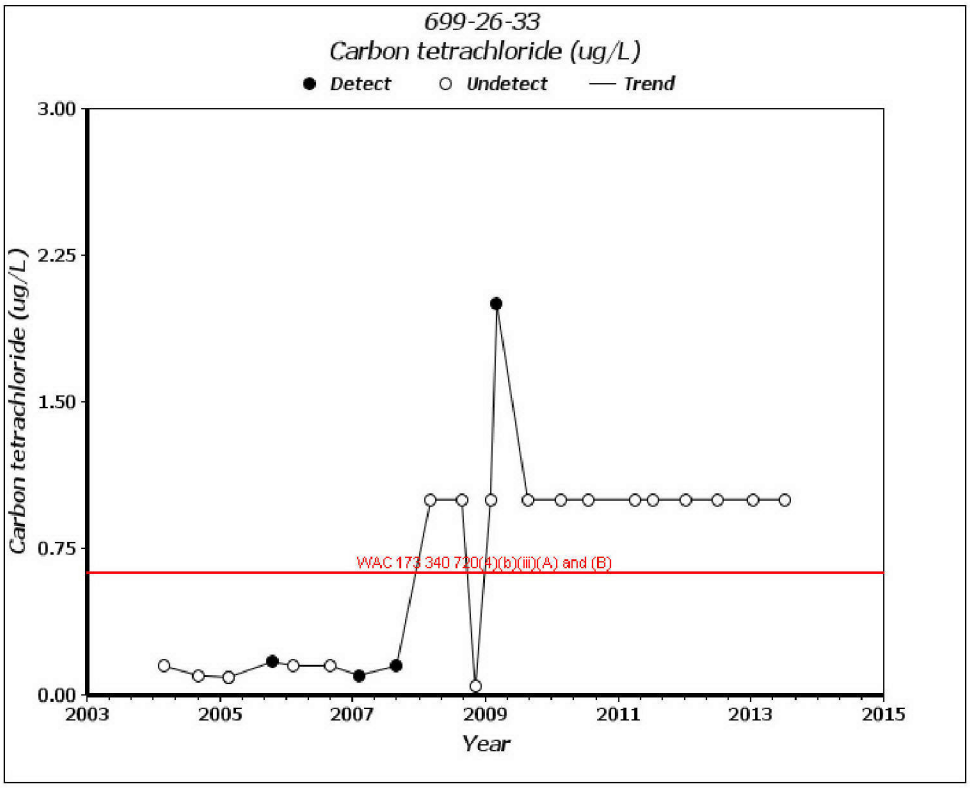


Figure B-15. Carbon Tetrachloride Concentrations in Well 699-26-33

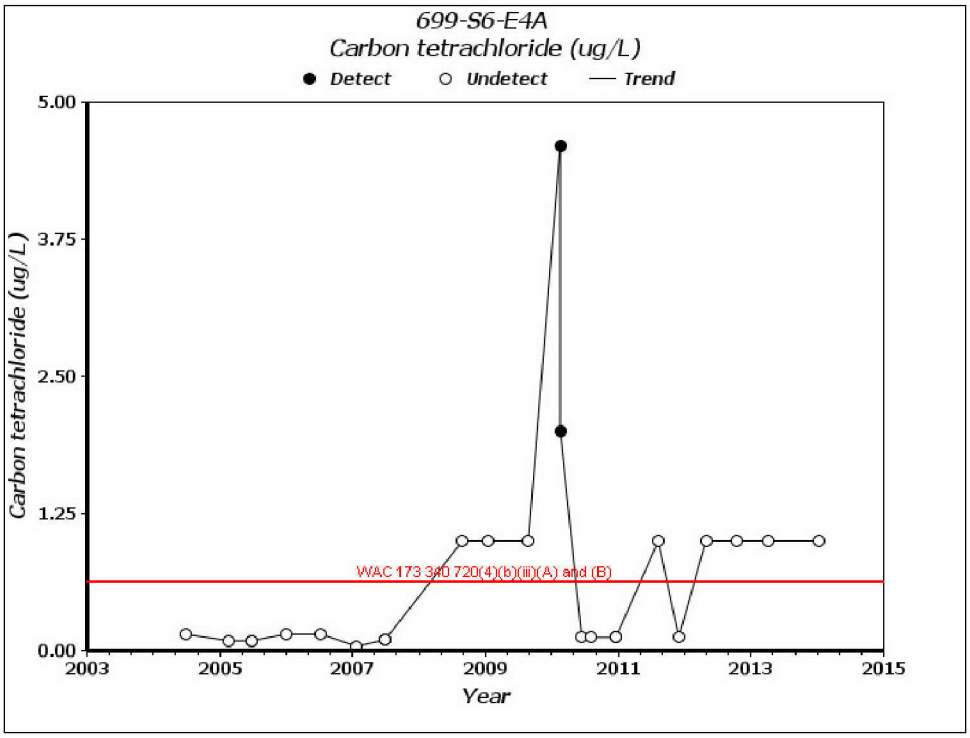


Figure B-16. Carbon Tetrachloride Concentrations in Well 699-S6-E4A

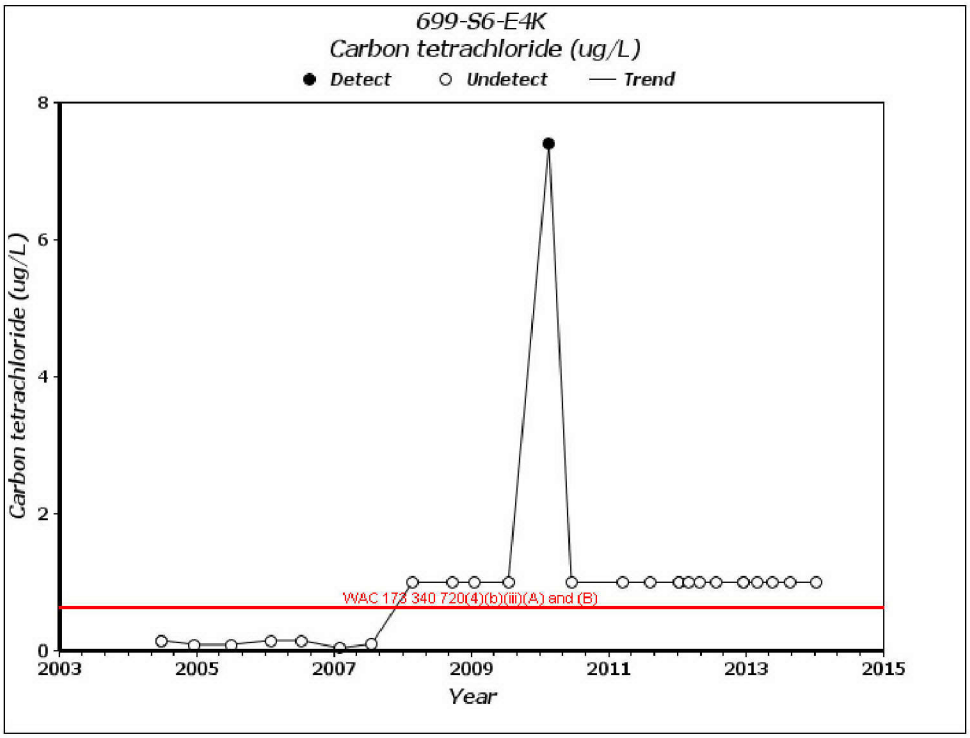


Figure B-17. Carbon Tetrachloride Concentrations in Well 699-S6-E4K

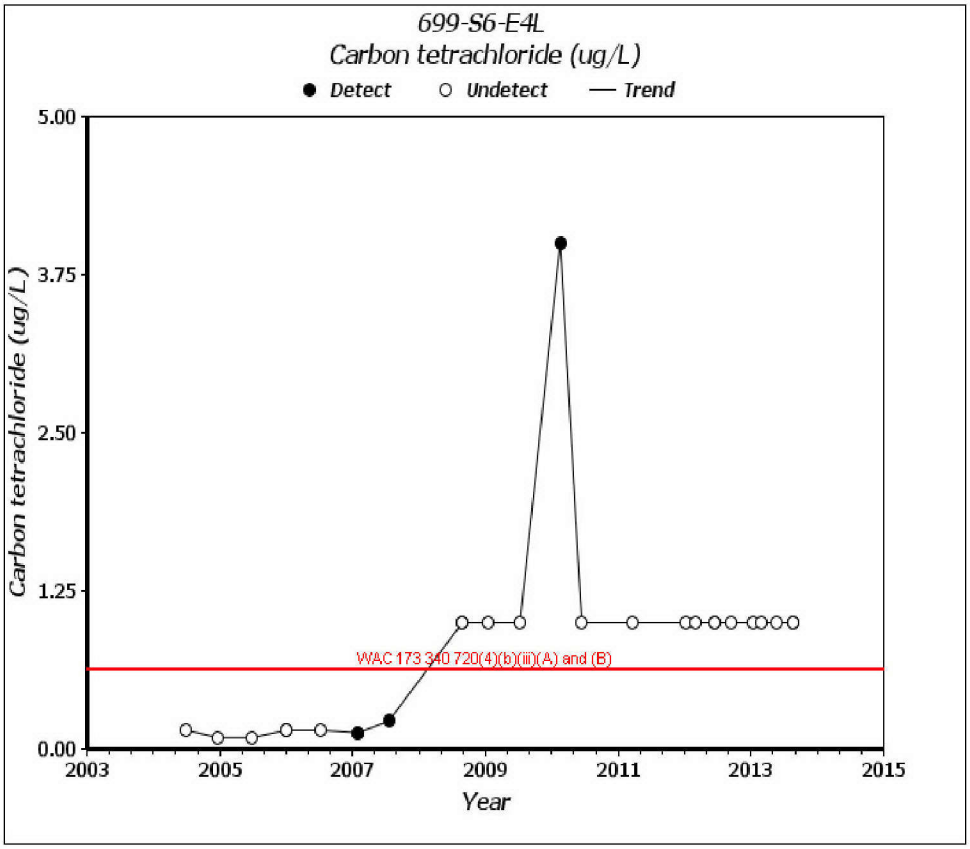


Figure B-18. Carbon Tetrachloride Concentrations in Well 699-S6-E4L

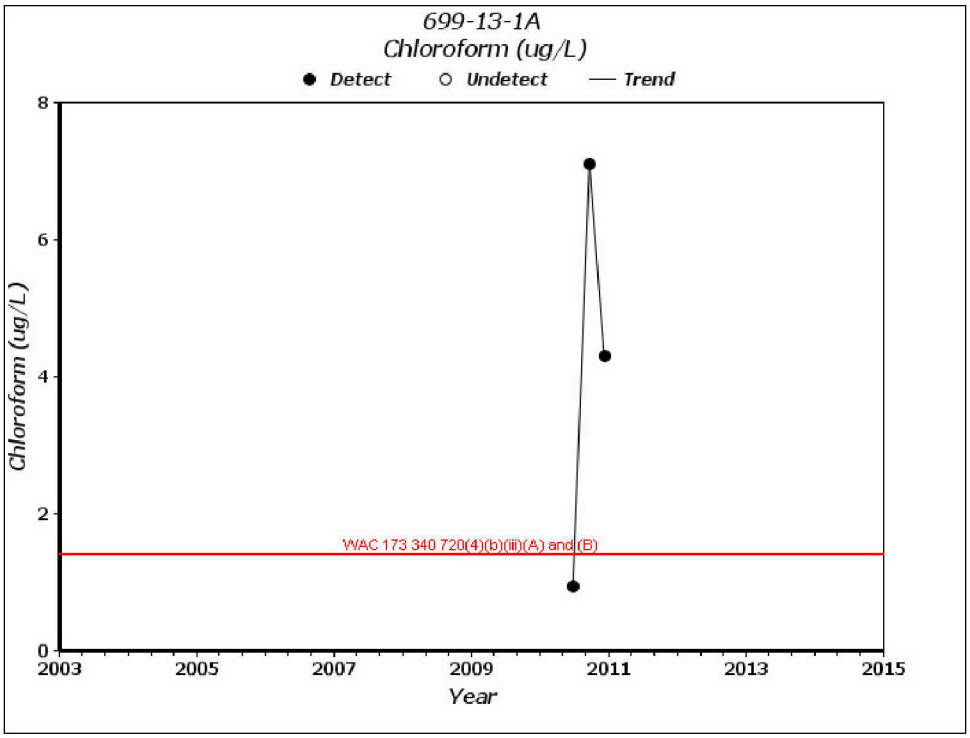


Figure B-19. Chloroform Concentrations in Well 699-13-1A

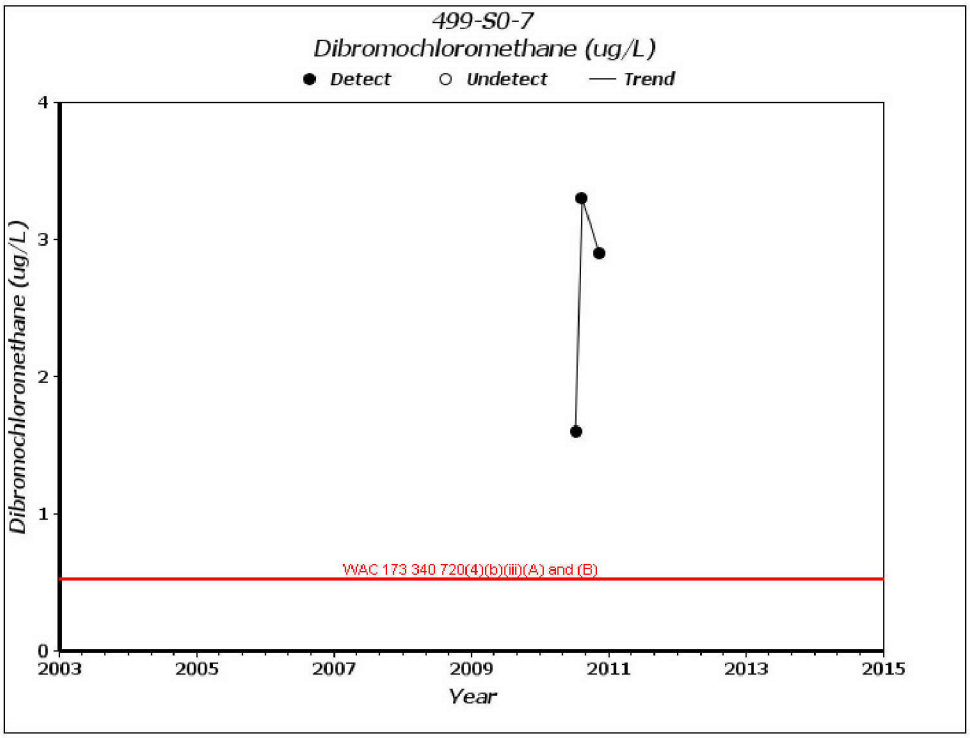


Figure B-20. Dibromochloromethane Concentrations in Well 499-S0-7

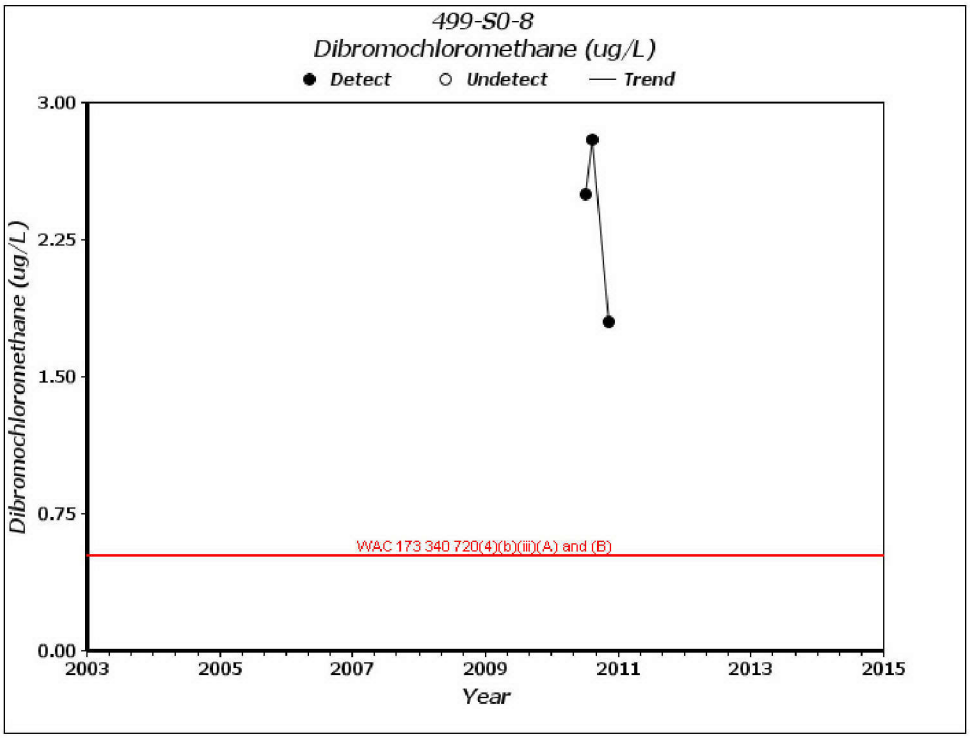


Figure B-21. Dibromochloromethane Concentrations in Well 499-S0-8

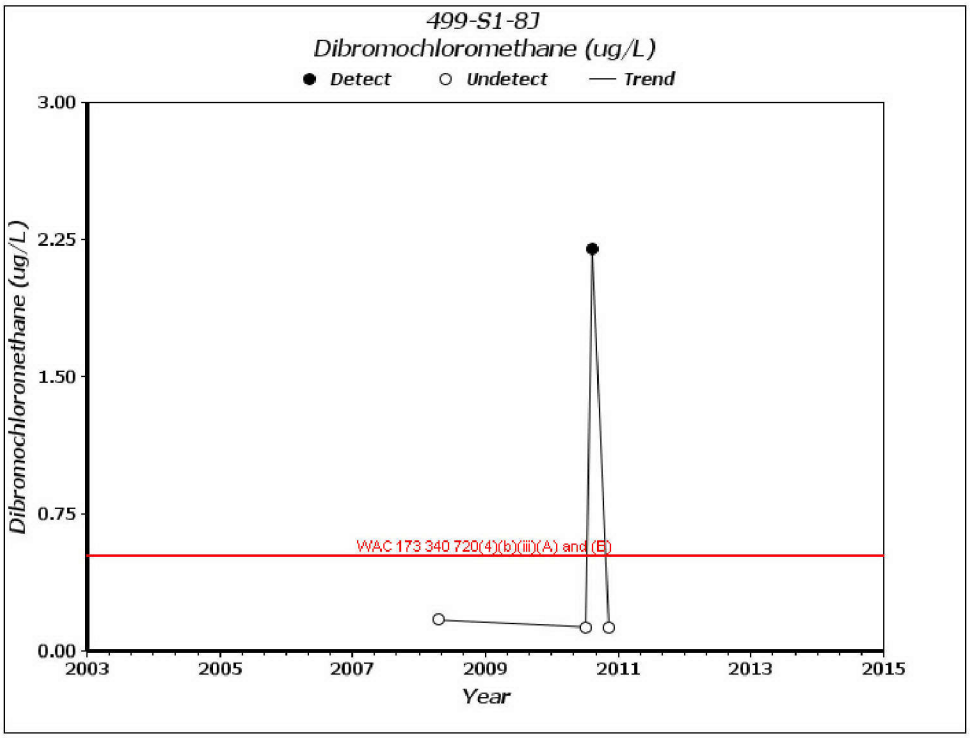


Figure B-22. Dibromochloromethane Concentrations in Well 499-S1-8J

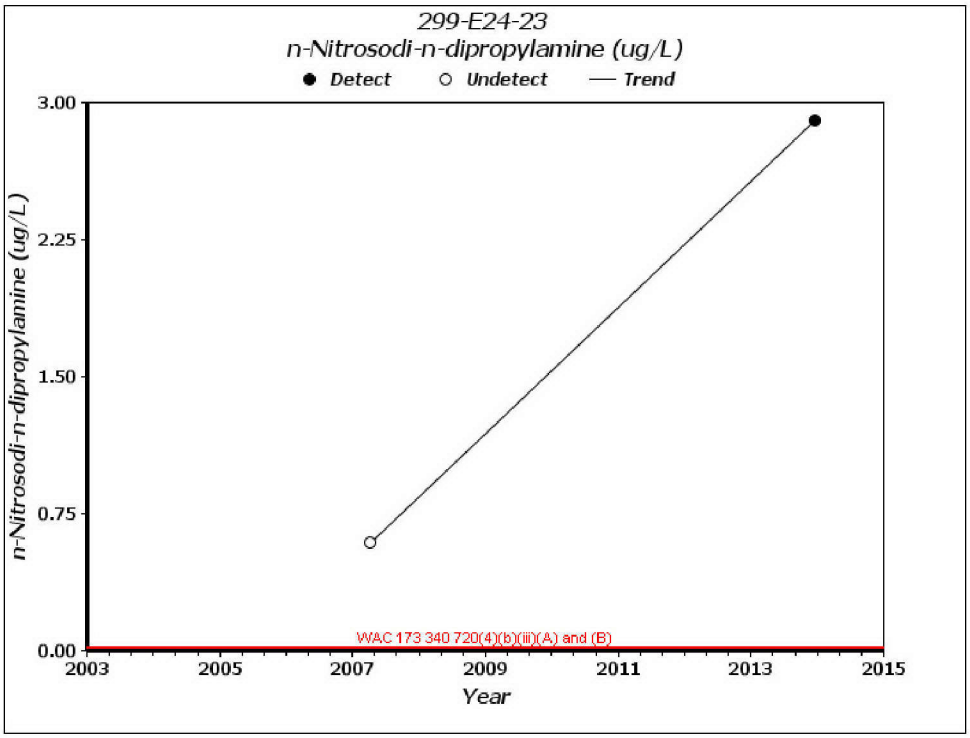


Figure B-23. n-Nitrosodi-n-Dipropylamine Concentrations in Well 299-E24-23

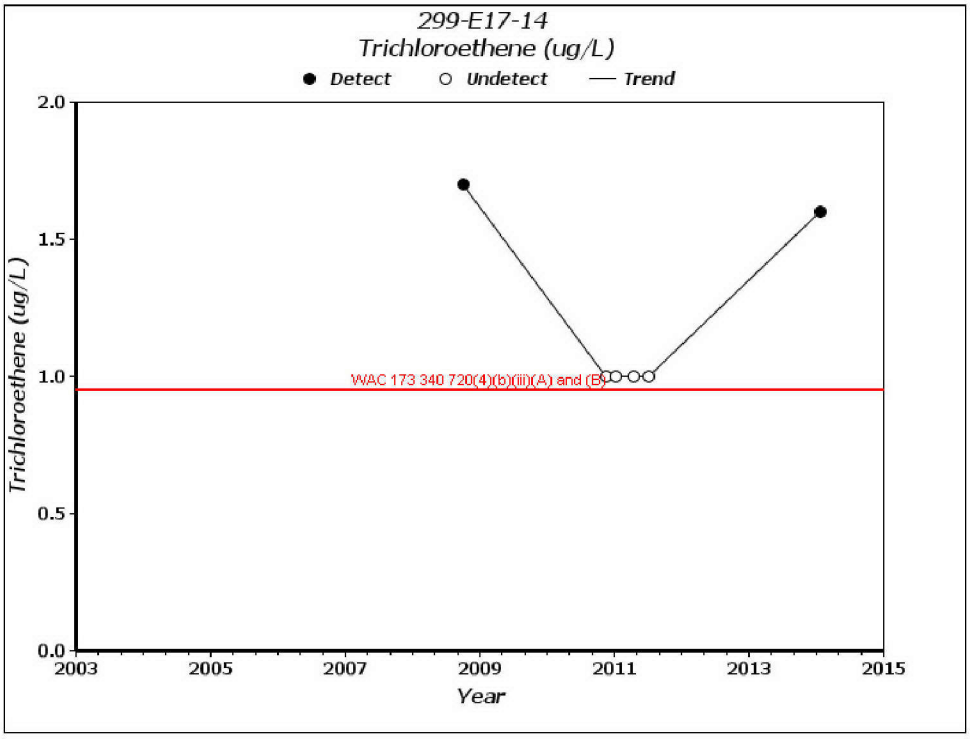


Figure B-24. Trichloroethene Concentrations in Well 299-E17-14

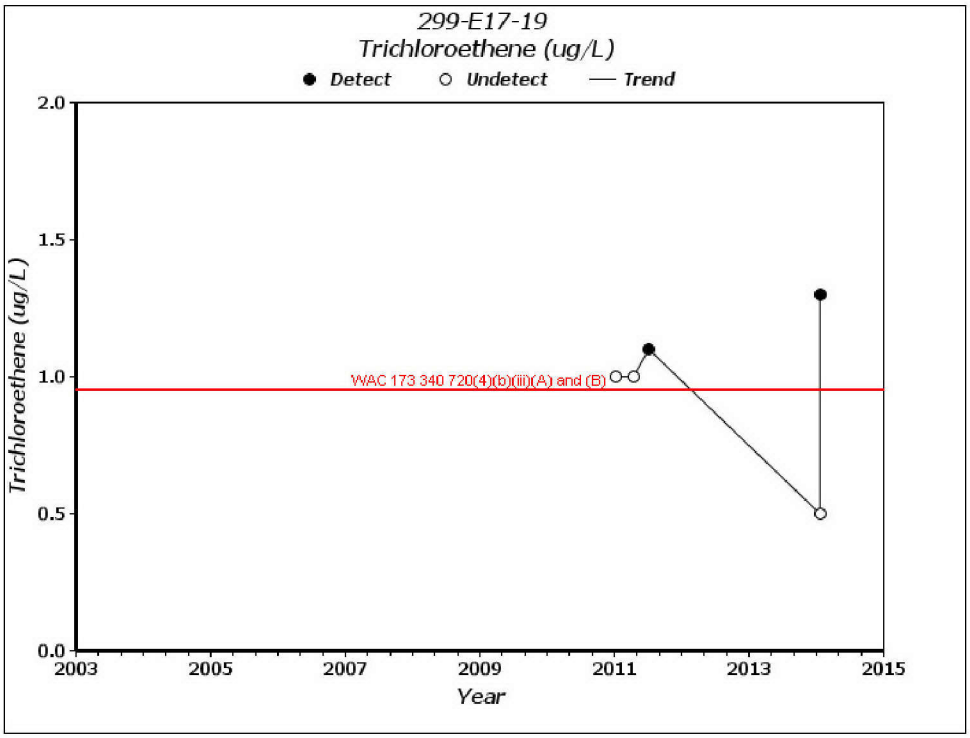


Figure B-25. Trichloroethene Concentrations in Well 299-E17-19

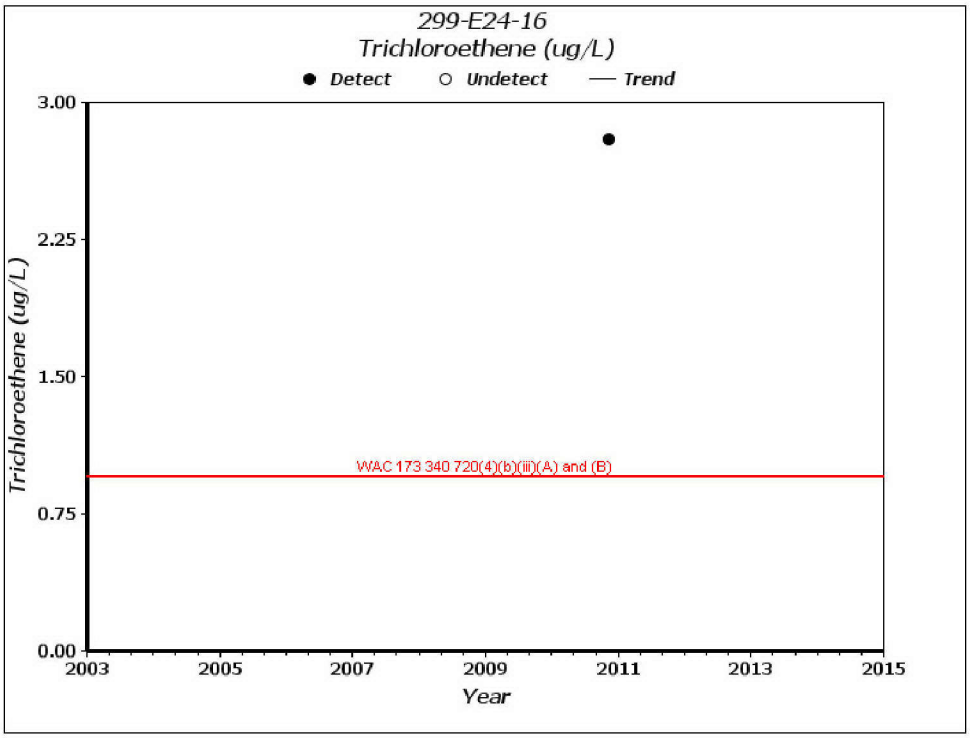


Figure B-26. Trichloroethene Concentrations in Well 299-E24-16

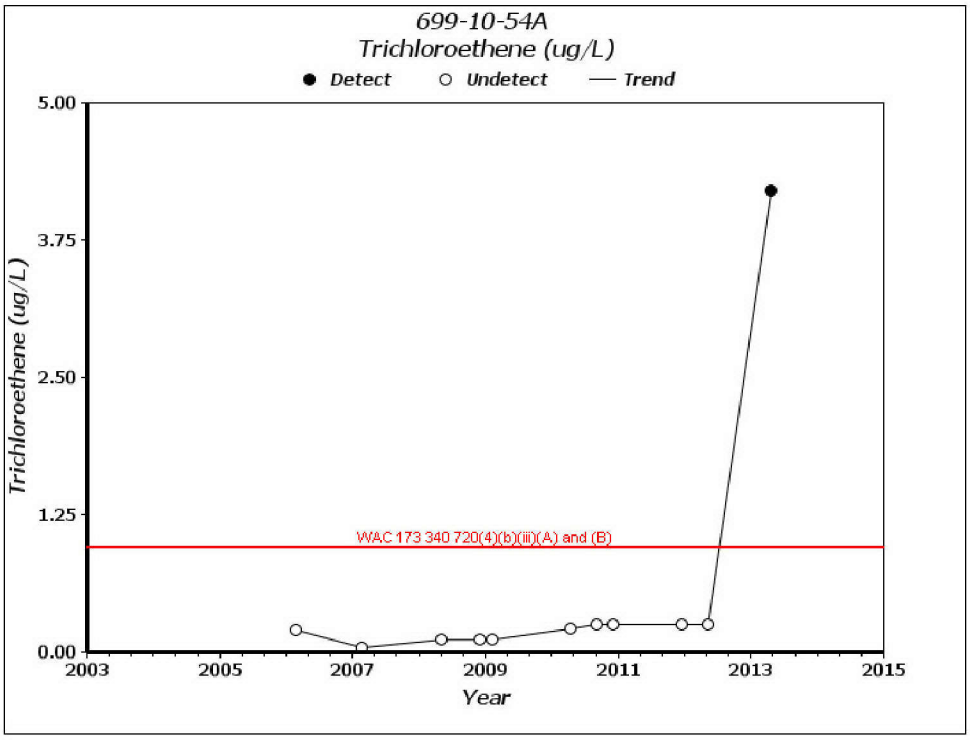


Figure B-27. Trichloroethene Concentrations in Well 299-E24-23

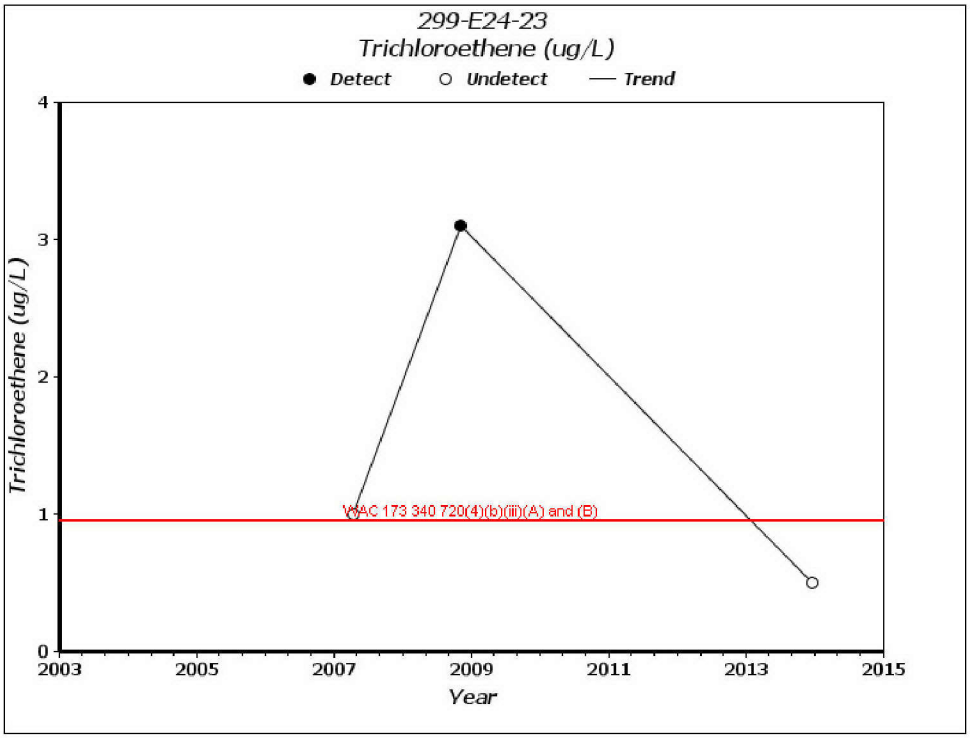


Figure B-28. Trichloroethene Concentrations in Well 699-10-54A

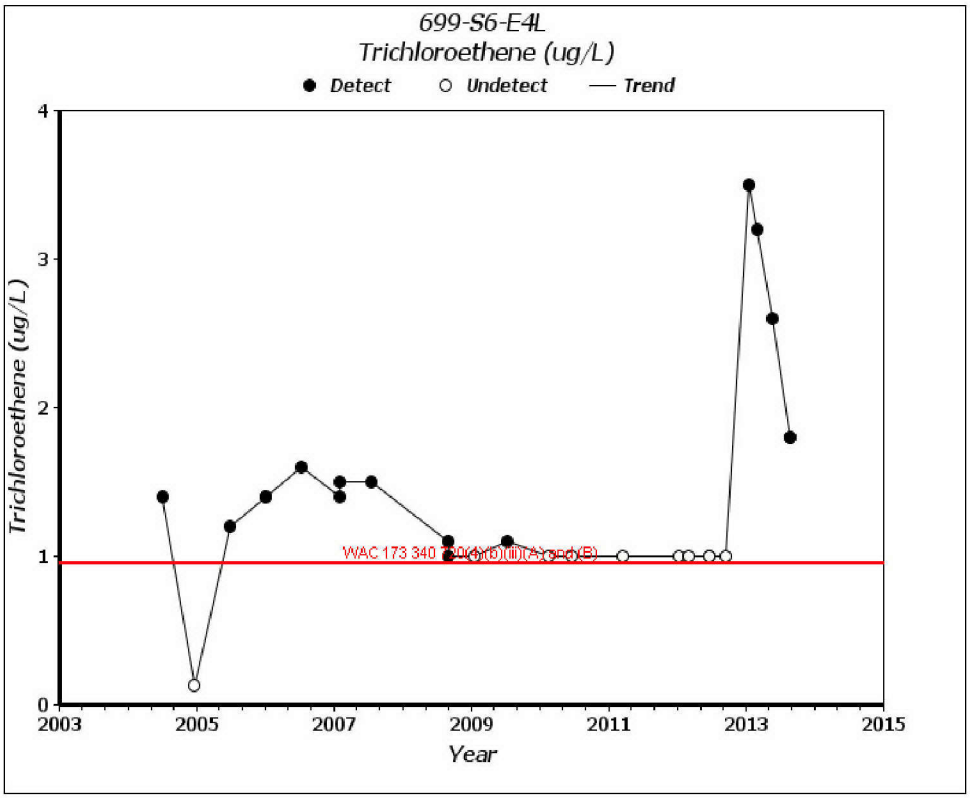


Figure B-29. Trichloroethene Concentrations in Well 699-S6-E4L